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INDE

Governor's M

Report State Treasurer ....
Report Secretary of State.............
Report Attorney General............. .
Report Farmers' Board of Trade......
Report Auditor of State ....
Report University of Minnesota.......
Report State Geologist, 1881 ....
Report State Geologist, 1882 ....

BIENNIAL M

OF

GOV. L. F. H

TO THE

LEGISLATURE OF MI

DELIVERED JANUARY 4,

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MINNEAPOLIS:
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BIENNIAL ME

OF

GOVERNOR L. F.

Gentlemen of the Senate and House of Re

You assemble at this time under cir
careful and considerate action upon the
mand your attention. You bring wit
localities the assurance that the people o
and enjoying that feeling of content
rewarded industry. The various materi
have developed and prospered during th
extent not exceeded by any previous expe
her history, and all existing conditions are
rapid and healthy growth. The exercis
judgment upon your part in the delibera
greatly aid in realizing for our State that
presents before us.

It is a pleasure, gentlemen, to greet yo
assembly convened in the new capitol b
somewhat incomplete state, it will doubt
facilities for the proper prosecution of your

The old Territorial capitol, completed in
fire on the night of March 1, 1881, durin
session of the legislature of that year. It
immediately after the fire, that the foundat
walls of the burned building could be utili

and an appropriation of $75,000 was made with the expecta
that the expenditure of that sum would substantially restore
old building. It was decided after a more thorough inspection
it would be unsafe to build upon the ruins of the old capito
was then determined by my predecessor to erect an entirel
structure, and the plans of this building were adopted by hi
the foundation laid during the summer of 1881. The ab
ment of the old building and the adoption of new plans i
a much greater expenditure than was anticipated or had b
vided for. At the extra session of November, 1881, an a
appropriation of $100,000 was made to "finish and furn
new building, which sum, it was provided by the terms c
making the appropriation, should "complete the build
respects." The autumn months of 1881 were very unfa
the prosecution of building operations, hence no wor
upon the superstructure, though it was largely contra
a portion of the material for the walls and roof deliver
ground.

Upon a careful examination of the matter sho
accession to the executive office, I felt much doubt
ciency of the amount appropriated to complet
according to the plans adopted and the terms of
Legislature. I therefore called upon the architect
of the amount required to complete the building,
had already been expended. In response thereto
estimate aggregating $245,000.

This was largely in excess of the appropriat
were $184,000, including $9,000 made for repai
capitol, which were deemed available for the n
exhibit, which showed a deficiency of $61,000
and a surprise to many who believed the appr
cient to complete the building. I was assure
iar with the facts, among whom were memb
to whom the details had been submitted, th
tion for the purpose was understood to be a
estimates of the architect. A further cons
tect disclosed the fact that he had made,
and submitted to my predecessor, an
a cheaper construction and a finish c
acter, and which omitted some essenti
ing altogether, notably the tower, f
reduced his figures to a point with

e with the expectation
ubstantially restore the
horough inspection that
s of the old capitol. It
o erect an entirely new
ere adopted by him, and
of 1881. The abandon-
n of new plans involved
cipated or had been pro-
nber, 1881, an additional
finish and furnish" the
by the terms of the act
plete the building in all
were very unfavorable for
hence no work was done
rgely contracted for, and
l roof delivered upon the

matter shortly after my
nuch doubt as to the suffi-
complete the building
terms of the act of the
architect for an estimate
building, including what
thereto he submitted an

propriations made, which
r repairs, etc., for the old
the new building. This
61,000, was disappointing,
appropriations were suffi-
ssured by gentlemen famil-
embers of the Legislature
l, that the final appropria-
be ample to cover the full
onsultation with the archi-
de, some months previous,
n estimate contemplating
of quite a different char-
tial features of the build-
fire proofing, etc., which
hin the appropriations. It

appeared, however, that the estimate was n
labor and material were cheaper, and th
even for the cheaper finish, could not then b
a formal call upon the architect for his
was furnished, but which in my judgment it
est of the State to adopt, as it contemplated
finish of the building, excluding all fire p
most respects quite out of harmony with th
the contracts for which were already let. T
however, out of the question in any event as
basis (as stated by the architect) of prices f
below those prevailing or at which it was p
The correspondence and estimates referred
your further information.

The appropriation being entirely inadequa
of the building, I had determined to prosecu
to complete the contracts already let, and ad
diture as would enclose the structure and pr
ments, and await further action of the Legis
nouncement of this determination on my pa
was made to me by the citizens of St. Paul,
ting the building in proper condition to be o
lature at this session. The tender was made
was accepted without assurances upon my pa
could not give) as to the future reimburseme
ing it. I was encouraged by this generous
of St. Paul to continue the work, and there
contracts and purchases of material necessar
ing for your occupancy. Though I incurr
so in accepting this aid, yet I feel it is due
liberality and public spirit thus came to th
the dignity of the State, that I should recom
thus tendered and expended be returned to t

The estimates of the architect for the w
authorized are largely exceeded by the actua
to meet this excess and to provide the dom
steps to the several entrances and prepare a
an additional sum will also be required. I
architect to prepare final estimates covering
which will soon be submitted and which wi
about $120,000 will be necessary to meet th
the building, including the $40,000 received

red to. I therefore recommend that an appropriation of the sum named be made. It will require an additional sum to furnish the rooms occupied by the several departments, a careful estimate of which will be submitted at an early day, and for which an appropriation should be made.

I have given the work of construction upon this building much personal attention. I have been careful that every item of expenditure should be as carefully and economically made as possible. I believe the State has received value for every dollar expended, notwithstanding much of the work has been done at some disadvantage. To put the building in condition to be occupied by your body necessitated the employment of labor with less economy, to some extent, than might have been done had more time been allowed. The first brick was laid upon the foundation on the 4th day of last April, hence the construction of this almost completed structure has covered a period of but nine months' time. It is in all essential respects a fire-proof building. It will furnish ample accommodation for all departments of the State government for a generation to come. It will cost, when completed, in all respects, about $300,000; and I state with confidence my belief that contracts could not be made to-day to duplicate this structure for the money it will have cost when completed.

In this connection it is proper that I should refer to the generous offer made by the city of St. Paul of its market house for the use of the State pending the construction of the new capitol. Before the illumination caused by the burning of the old capitol had begun to fade, the city of St. Paul, through its authorities, tendered to Gov. Pillsbury the use of the market house for the Legislature and State officers, and nearly at the hour for its usual meeting on the following day, the Legislature was engaged in the routine of its regular order in the new quarters thus provided. The State has occupied the building since that time, a period of twenty-two months. It has been no inconsiderable sacrifice upon the part of the city and her citizens to be deprived of the facilities and conveniences this building was designed to afford them. Its use has been of very great public benefit. I submit that it would be but just for the State to compensate the city in a reasonable amount for the use she has made of the building; that it does not comport with the dignity of the State to remain in money values the beneficiary of any citizens or municipalities. This suggestion is wholly my own, no intimation having ever reached me that compensation was desired or would be accepted.

FINANCES.

The following statement made by the auditor's department exhibits the financial operations of the State treasury during the past two years:

RECEIPTS.

	1881.	1882.
Cash balance, Nov. 30, 1880	$ 264,151 99	....
Cash balance, Nov. 30, 1881	....	$557,744 27
State taxes	504,666 80	402,600 08
Taxes from railroad, insurance and telegraph companies	362,294 75	509,383 43
Fees of Insurance companies	6,534 00	6,355 00
Payments by counties for seed grain loans, 1877–'78.	35,860 13	18,405 93
Board of United States convicts	756 75	494 25
County indebtedness to reform school	9,845 00	21,391 18
Interest on State Deposits	12,531 65	8,417 23
United States 5 per cent. on sales of public lands	3,115 98	49,561 43
Sale of grass on school lands	746 28	1,293 11
Sale of pine timber on State lands	26,638 47	89,174 68
Principal received at sales of school lands	87,025 46	20,718 65
Principal received on former sales of school lands	134,774 07	210,863 21
Interest paid on contracts of school lands	171,587 16	167,157 46
Principal received at sales of int. imp. lands	21,851 00	8,810 74
Interest received at former sales of int. imp. lands	9,440 53	23,387 39
Interest paid on contracts of int. imp. lands	30,147 27	32,832 78
Principal received sales of agricultural college and university lands	6,589 68	464 35
Principal received former sales of agricultural college and university lands	10,703 18	12,027 50
Interest paid on contracts of agricultural college and university lands	20,213 89	20,326 50
Interest paid on pine stumpage account	438 58	2,833 17
Interest paid on permanent school fund bonds	103,698 33	81,225 10
Interest paid on permanent university fund bonds	9,355 00	9,475 00
Interest paid on int. imp. land fund bonds	9,500 00	4,010 00
Redemption of Minnesota bonds, 1873–8	100,000 00	104,000 00
Redemption of United States bonds, 6's gold	10,000 00	....
Redemption of Missouri bonds, 6's gold	....	21,000 00
Payment by counties for school text books	13,547 92	12,066 39
Insurance on State library	10,200 00	....
Sale of United States 4 per cent. bonds, $339,000	....	395,517 60
Sale of United States 6 per cent. bonds, $212,000	....	272,192 00
Sale of Missouri 6 per cent. bonds, $123,000	....	135,594 50
Miscellaneous	3,350 24	2,093 86
Totals	$1,979,558 06	$3,201,416 79

DISBURSEMENTS.

Legislative expense, regular session	$ 73,206 03	$ 18 00
Legislative expense, extra session	46,132 35	....
Senate Court of Impeachment	....	28,[illegible]67 65
Executive	63,545 74	59,980 19
Judicial	69,796 36	79,502 47
Support of insane hospitals, prison, reform school, deaf, dumb, blind and embeciles, and Normal schools	300,465 47	312,413 00
Support of University	47,000 00	43,881 41
Public buildings	174,617 24	331,983 53

Public printing and stationery	33,989 79	33,298 34
Printing laws in newspapers	32,044 60	1,305 40
Interest on State debt, loans '73 and '78	19,485 55	11,706 15
Interest on State debt, R. R. ad'g State bonds	....	88,086 45
Apportioned school funds	259,414 96	259,097 89
Purchase of bonds for invested funds, including premiums, etc	79,872 65	1,596,005 00
Agricultural and horticultural societies	3,076 94	4,152 00
Historical society	3,969 08	3,391 93
State Boards of Health, Equalization, Immigration, Farmers' Board of Trade	9,069 77	6,851 54
Training schools and institutions	2,765 00	3,235 00
Fish Commissioners	3,700 00	4,500 00
Selling State lands	5,897 86	3,291 00
School text books	13,617 31	11,420 23
Redemption of State bonds of '73 and '78	100,000 00	104,000 00
Miscellaneous	80,147 13	71,429 25
	$1,421,812 79	$3,058,317 21
Balances in treasury November 30	$ 557,774 27	$ 143,09859

To the credit of the following funds:

	Nov. 30, 1881.	Nov. 30, 1882.
State institutions	$ 82,746 37	$ 20,246 91
Interest	6,230 58	6,818 17
Sinking	16,050 79	582 31
Seed grain sinking	6,394 92	800 85
Permanent school	317,091 98	104,172 54
General school	30,015 05	18,657 27
Permanent university	46,232 17	16,003 11
General university	31,701 91	12,499 98
Internal improvement	4,865 49	10,653 88
Internal improvement land	93,539 71	65,910 32
School text book	1,217 65	1,863 82
Forestry	....	25,686 10
Swamp land	....	2,013 68
Totals	$ 636,086 63	$285,908 94
Deduct revenue fund, overdraft	78,342 36	142,810 36
Cash in treasury	$557,744 27	$143,098 58

This statement, in its general aspect, though indicating a healthy condition of the treasury—there being an apparent credit balance of $143,098.58 at the end of the last fiscal year—is misleading in some of its details. While there is the amount in the treasury as stated, the revenue fund, from which must be paid all legislative, executive, judicial and other general expenses, is overdrawn to the amount of $142,810.36. This overdraft is carried largely by the trust funds of the State, which otherwise would have a considerable available surplus for permanent investment. The limit to which such overdraft is allowed by law is $150,000. It therefore appears that there is practically no money in the treasury available to pay the expenses of your body or other departments of the State government. It is true you can authorize a still further overdraft but this manner of relieving the revenue fund is not in accord with such principles of finance as should govern the management of the treasury. As a temporary expedient to meet an exigency that could not be foreseen, it is perhaps permissable, but as a practice it is wrong. The large overdraft now existing is caused by several extraordinary expenditures, such as the extra session of 1881, the Cox impeachment trial, rebuilding the capitol, interest on the railroad adjustment bonds, etc., for which no account was taken in the tax levy the past year. While the Legislature of 1881 made appropriations for all these accounts, it did not make provision to increase the revenue to meet them.

The actual receipts from taxes and other sources that provide the revenue fund, have exceeded the estimated receipts the past two years $346,650.06, but the actual expenditures have exceeded the estimates $764,815.46, during the same time, as appears in detail in the following statement:

Estimated and actual receipts and disbursements in 1881 and 1882 for expenses of the State government and support of State institutions:

1881—RECEIPTS.

	Estimated.	Actual.
State taxes	$398,000	$411,518 51
Railroad and telegraph companies	290,000	330.625 50
Transfer from Imbecile Asylum fund	... ..	74 41
Miscellaneous sources	55,000	70.643 08
Balance in treasury November 30, 1880	138,000	138,927 01
Totals	$881,000	$951,788 51

DISBURSEMENTS.

Legislature, regular session	$100,000	$73,205 03
Legislature, extra session	.....	46,132 35
Executive	55,000	63,545 74
Judicial	50,000	69,796 36
Printing	25,000	33,989 79
Miscellaneous and over drafts	56,000	143,664 38
Support of institutions	280,000	300,465 47
Buildings and repairs	100,000	174,617 24
Interest on State bonds	13,000	19,485 55
Totals	$679,000	$924,952 91
Surplus	$202,000	$26,835 60
Transfer to sinking fund		$16,201 01
Surplus available for 1882		10,634 59

1882—RECEIPTS.

State tax	$150,000	$311,205 18
Railroad companies	325,000	470,556 65
Miscellaneous	63,000	107,719 85
Surplus	202,000	10,634 59
Overdraft less balances	....	115,745 28
Totals	$740,000	$1,015,861 55

DISBURSEMENTS.

Impeachment court	$	$ 28,885 65
Executive	55,000	59,980 19
Judicial	50,000	79,502 47
Printing	15,000	33,208 34
Miscellaneous	56,000	70,095 80
Support of institutions	314,000	312,413 00
Interest on State bonds	7,000	11,706 15
Interest on State bonds, railroad adjustment	....	88,086 45
Building, State	......	331,983 50
Totals	$497,000	$1,015,861 55

This statement shows the actual disbursements the past year, for which appropriations were made in 1881, to have exceeded the estimated disbursements more than 100 per cent.

The estimated receipts and disbursements for 1883 and 1884 are as follows:

REVENUE FUND.

RECEIPTS—1883.

State taxes	$315,000 00	
Insurance companies' taxes and fees	47,500 00	
Counties for inmates of reform school	16,000 00	
Prison rent and labor	10,000 00	
Interest on deposits	10,000 00	
United States convicts and miscellaneous	1,500 00	$400,000 00

EXPENDITURES—1883.

Overdraft November 30, 1882	$142,810 36	
University buildings, grounds and furniture on books	82,000 00	
Capitol repairs and furnishing on books	5,714 53	
Prison wall, etc., on books	10,390 99	
Executive estimate	65,000 00	
Judicial estimate	84,000 00	
Capitol building deficiency	120,000 00	
Capitol furnishing	25,000 00	
Court of impeachment deficiency	14,000 00	
Legislative expenses	80,000 00	
Printing	35,000 00	
Printing laws in newspapers	20,000 00	
Miscellaneous	85,000 00	768,915 88
Estimated excess of expenditures		$368,915 88

RECEIPTS—1884.

State taxes	$ 320,000 00	
Insurance companies' taxes and fees	50,000 00	
Counties' inmates of Reform School	17,000 00	
Prison rent and labor	15,000 00	
Interest on deposits	10,000 00	
Miscellaneous	2.000 00	
		$414,000 00

EXPENDITURES—1884.

Executive	$ 67,500 00	
Judicial	84.000 00	
Printing	15,000 00	
Miscellaneous	$ 80,000 00	$246,500 00
Surplus		$167,500 00

STATE INSTITUTIONS FUND.

RECEIPTS—1883.

Railroad companies' taxes	$ 500,000 00	
Telegraph companies' taxes	5,000 00	
		$505,000 00

EXPENDITURES.

Support of First Insane Hospital	$ 131,625 00	
Support of Second Insane Hospital	62,400 00	
Support of Deaf, Dumb, Blind and Imbecile Institute	50,000 00	
Support of Prison	60,000 00	
Support of Reform School, and deficiency	42,501 15	
Support of Normal Schools	38.000 00	
Support of Historical Society	4,000 00	
*Interest on Minnesota 4½ per cent. railroad adjustment bonds	59,760 00	
		$448,286 05
Surplus		$56,723 95

RECEIPTS—1884.

Railroad companies' taxes	$ 550,000 00	
Telegraph companies' taxes	5,000 00	
		$555,000 00

EXPENDITURES.

Support of First Insane Hospital	$ 141,375 00	
Support of Second Insane Hospital	72,800 00	
Support of Deaf, Dumb, Blind and Imbecile Institute	60,000 00	
Support of Prison	65,000 00	
Support of Reform School	35,000 00	
Support of Normal Schools	38,000 00	
Support of Historoical Society	4,000 00	
*Interest on Minnesota 4½ per cent. R. R. adjustment bonds	84,580 00	
		$500,755 00
Surplus		$ 54,245 00

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*Interest on these bonds not included in these estimates will be paid from funds provided by Chap. 71 Gen. Laws, Ex. Sess. 1881.

From the above showing there appears an estimated deficiency in the revenue fund, including the present overdraft, of $368,915.88 in 1883, and an estimated surplus of $167,500 of the same fund in 1884. The present and prospective deficiency in the revenue fund should engage your early attention. A further overdraft, except for momentary relief, ought not to be considered; an increase in the tax levy would bring no relief until another year. The only resource left is a temporary loan. An issue of bonds at a low rate of interest to such an amount within the constitutional limit, as may seem to be required after a thorough examination, redeemable at the pleasure of the State after one year from their issue, could be taken by the trust funds which have carried this overdraft for so long a time. The entire issue could probably be redeemed within three years, from the surplus revenue, without increasing the tax levy to any considerable extent.

The auditor in the above estimates of receipts and disbursements has not included any part of the amounts asked for by the State institutions for additional buildings, enlargements or repairs.

The increase in the permanent trust funds of the State, during the biennial period just closed, have been as follows:

	1881.		1882.	
Permanent school fund	$406,262	54	$516,335	93
Permanent university fund	33,274	25	68,303	37
Internal improvement land fund	183,350	91	206,981	59
	$622 887	70	$791,620	89

The present standing of these funds is clearly shown by the following statement:

PERMANENT SCHOOL FUND.

$299,000 United States 6 per cent. currency, cost	$305,410	05
$25,000 Minnesota 7 per cent. currency loan of 1873	25,000	00
$61,000 Minnesota 6 per cent. currency loan of 1878	61,000	00
$1,033,000 Minnesota 4½ per cent. Railroad Adjustment	1,033,000	00
$868,000 Missouri 6 per cent. currency	875,416	92
Land contracts bearing 7 per cent	2,898,769	49
Cash	104,172	54
Unpaid drafts	69,557	23
Total	$5,372,326	23

PERMANENT UNIVERSITY FUND.

$241,000 Minnesota 4½ per cent. Railroad Adjustment	$ 241,000	00
Land contracts bearing 7 per cent	354,374	62
Unpaid drafts	3,937	83
Cash	16,003	11
Experimental farm	8,500	00
Fruit farm	1,309	10
Total	$625,124	66

INTERNAL IMPROVEMENT LAND FUND.

$322,000 Minnesota 4½ per cent. railroad adjustment	$ 322,000 00
Land contracts bearing 7 per cent	703,518 80
Unpaid drafts	19,647 66
Cash	65,910 32
Total	$1,111,076 78

Of the 3,000,000 acres which it is estimated will eventually inure to the State for the use of schools there have been sold 790,801.23 acres. There are unsold 601,638.47 acres, appraised at $3,316.020, and about 1,600,000 not yet appraised, situated mostly in the northern part of the State. The constitution now devotes to the common school fund one-half the proceeds of the sale of swamp lands of the State. The selections approved as swamp or overflowed lands in the surveys up to 1880 amounted to 4,000,000 acres. In the unsurveyed area there should be perhaps 2,000,000. The State land commissioner computes the total of all State land grants at 3,400,000 acres, but, according to the claim of the grantees, the amount is 5,000,000. It is believed the State will eventually realize an amount equal to $5 an acre for all school lands yet unsold, which will swell the permanent school fund to over $16,000,000, and it is not unlikely that the swamp land reversion may raise that magnificent sum to $18,000,000, or even $20,000,000.

Of the 169,353.32 acres covered by the University and Agricultural College grants, there have been sold 97,007.32 acres, leaving 72,346 acres yet to be disposed of. These are largely agricultural lands, and are valued at an average of $6 an acre. The permanent university fund is therefore expected to finally realize from this source the sum of $1,059,200.66.

The Internal Improvement Land fund will probably reach fully $3,000,000, when the remainder of the land belonging thereto is disposed of. There have been sold 157,095.78 acres, and 311,259.46 additional acres have been appraised at $1,649,656.64, leaving 31,331.27 acres yet to be appraised.

The proposition submitted at the general election "providing for the application of the moneys of the internal improvement land fund to the payment of the principal and interest of the Minnesota State railroad adjustment bonds" having been approved by the people, as shown by the canvass of the votes recently made, there is now provided a sinking fund sufficient to redeem, when due, much the larger portion of the indebtedness resulting from the adjustment of the "Minnesota State railroad bonds," and the income therefrom when the lands are all sold, will also provide for the payment of a corresponding proportion of interest accruing upon such indebtedness.

Under the terms of the act approved November 4, 1881, "providing for the adjustment of certain alleged claims against the State," there have been redeemed 2,232 of the Minnesota State railroad bonds of the denomination of $1,000 each, and other claims adjusted to the amount as allowed of $53,088.66. The adjustment of these bonds and claims, according to the terms of the act, has required the issue of $4,253,000 of the 4½ per cent. bonds, and there are claims to the amount of $4,250.84 yet to be provided for by a further issue to that amount.

The original issue of Minnesota State railroad bonds was $2,275,000. The State acquired possession of $15,000 of these bonds some years ago. There have been redeemed as above stated $2,232,000, which leaves but $28,000 now outstanding.

The recognized indebtedness of the State is now represented by the following obligations:

Loan of 1873 for building purposes, 7s.	$ 25,000 00
Loan of 1878 for seed grain distribution, 6s	61,000 00
Railroad adjustment bonds, 4½'s	4,253,000 00
Railroad adjustment claims	4,250 84
	$4,343,250 84

The loan of 1873 is redeemable the present year, and that of 1878 will be redeemed with receipts from counties for loans made in 1877 and 1878 for the purchase and distribution of seed grain.

The taxable property within the State has increased from $258,055,543 in 1880 to $311,200,841 in 1882.

Taxes for the past two years were levied as follows:

	1881.	1882.
State tax	$ 379,689 25	$ 341,686 94
Seed grain taxes (individual)	56,616 59	12,009 18
General school—1 mill	270,737 84	310,116 37
Special school	1,190,086 36	1,381,361 78
County revenue	875,640 32	1,009,465 48
County interest	99,881 46	100,741 38
County poor	140,116 77	153.641 07
County special purposes	91.039 78	164,102 05
City taxes	807,393 76	1,135,261 27
Township taxes	297,018 78	303,785 06
Delinquent road	146,420 64	166,266 60
Interest on town bonds	72,624 62	120,799 79
Special city and town	271,505 40	526,122 44
Total taxes for all purposes	$4,698,771 57	$5,725,359 41
Average rate for all purposes	17.3 mills	18.4 mills

A change in the fiscal year is suggested by the State Auditor and other officers. A habit that has grown up in some of our institutions of receiving and disbursing money in December as of November, leads to a delay of their reports for two or three weeks, which might be avoided. But I think it desirable, now that the Legislature meets biennially, that the full reports of State institutions and officers should be furnished in print for the deliberate consideration of the members elect, much earlier than they can possibly be under the existing law.

The dates for making official reports should also be similarly advanced. The law should be amended so that such reports as are required to be made and printed for the use of the Legislature, except that of the Commissioner of Statistics, need be made only biennially and on the years previous to regular sessions. I recommend also that the regular annual appropriations be hereafter made for fiscal, instead of calendar years, your own provision in that regard to close with the fiscal year ending in 1885.

STATE INSTITUTIONS.

The various charitable, reformatory and penal institutions of the State present a satisfactory record as regards their management and the results accomplished. An unmistakable evidence of the rapid increase of our population is the fact that nearly all these institutions have already reached the limit of their capacity, and are asking at your hands appropriations for additions and enlargement.

STATE PRISON.

The Inspectors of the State Prison submit a voluminous report, which exhibits in much detail the affairs of this institution. The management of the prison is highly commended and the record of its inmates as to conduct and condition is represented as very satisfactory. The total population at this time is 279, an increase of twenty-five during the past two years. The current expenses for 1881 were $49,964.56, and for 1882, $54,972.65.

The earnings were $26,277.04 and $30,952.78 for 1881 and 1882 respectively, most of which was credited to apply on purchase of machinery under the award of 1881. The Warden estimates the expenses for 1883 to be $60,000, and for 1884, $65,000, and the earnings $33,000 and $35,000 for the same time.

There has been expended during the past year $36,912.55 in construction of additional wall, for which an appropriation of $40,000 was made 1881, also liabilities incurred for paving streets within the inclosure, $3,700, painting roof $560, and premium for insurance $900, for which there was no appropriation, and which is presented in the form of a deficiency. The inspectors recommend a further appropriation of $25,000 to complete the wall, and $30,000 for the construction of 100 additional cells. There are but twenty vacent cells in the prison, most of which will soon be occupied. The additional cell room should be provided, and I therefore approve the recommendation of the inspectors in this respect. The completion of the wall would add greatly to the security of the prison, which, as the population increases, becomes more of an necessity. The expenditure might be made to cover a period of two or more years, and thereby relieve the treasury to that extent. A committee of your body, by personal examination, can best decide as to the urgency of this matter.

The prison enclosure will afford ample room for 500 or 600 cells, about double the present capacity. It will doubtless prove economy to the State to concentrate the population of this class in one institution, where the cost of management will but slightly increase with its growth, until its full capacity is reached. According to the inspector's estimate, the prison can be made to meet all requirements for ten years to come by increasing its cell capacity to the limit allowed by the enclosure, and without any increase of shop room or machinery, the labor of the convicts can be fully employed. Some of the gravest objections to the location of the prison are now overcome, though at large cost to the State. It would seem to be the part of wisdom now to make complete as possible the present institution, when it is confidently believed it will be placed on a self-sustaining basis.

REFORM SCHOOL.

The report of the Board of Managers of the Reform School shows a gratifying record for the past two years. The commitments to this institution since its establishment in 1868 have been 573; of this number 225 have been in connection with it during the past two years, and 123 are inmates at the present time. I ask your careful consideration of the reasons urged by the managers for a change in the law regulating commitments, especially that feature which provides for the maintenance by each county of the youth they respectively send to the institution. The reasons that may have existed in the early history of the school for this discrimination in the maintenance of its inmates have lost much of their force by the general devolopment of all portions of the State. Without repeating here the argument most forcibly presented by the report for the change referred to, I concur with the managers in their conclusions that the usefulness and efficiency of the school would be greatly augmented by placing it upon the same footing in this respect as the other State institutions. The engine house connected with the manufactory of the school with its contents and attachments was destroyed by fire last July. The property has been restored in a much improved form at a cost of $5,731.79. The expenditures, current fund, were for 1881 $30,101.64, and for 1882 $31,550.81. Appropriations are asked as follows:

Current expenses, 1883	$35,000 00
Current expenses, 1884	35,000 00
Deficiency for 1882, caused principally by destruction of engine house, etc.	7,501 00
Repairs and improvements, 1883-4	4,000 00
Insurance	2,000 00

INSTITUTE FOR THE DEAF, DUMB AND THE BLIND, AND SCHOOL FOR IDIOTS AND IMBECILES.

The Directors of the Institute for the Deaf, Dumb and the Blind, and the School for Idiots and Imbeciles, report "that the several schools under their care have, during the past two years, given exceptional satisfaction."

In May, 1881, there was organized a separate department for the education of the blind, which was placed in the charge of Prof. J. J. Dow, as Superintendent, who has been connected with the institute as teacher of the blind since 1875. This change in the system of its management has proven advantageous to the institute in many respects. The Deaf and Dumb department continues in charge of Prof. J. L. Noyes, who has established an enduring record of great efficiency in his work, during the many years he has labored in behalf of this institution.

The Imbecile School occupied its new building last February, and has since prosecuted its proper work more successfully, under the superintendence of Dr. George H. Knight. There is ample room in the building occupied by the deaf and dumb for the requirements of this class for several years to come, but the schools for the blind and the imbecile are already overcrowded. The directors ask an appropriation of $60,000 to erect and furnish additional space for these two departments. The statement which appears in the report, that there are now in the State eighty-four blind persons under twenty-five years of age who have never attended school, and fifty-nine applicants for admission to the imbecile school now waiting who cannot be accommodated, is, of itself, an argument in favor of increasing the capacity of these schools, that does not need to be enlarged upon. I therefore recommend a sufficient appropriation for the purposes stated.

There are now 125 pupils in the Deaf and Dumb department; 34 in the Blind, and 41 in the Imbecile. There are 233 uneducated deaf mutes in the State who have not yet received the advantages offered by this school.

The disbursements of the board for current expenses were $44,278.98 in 1881, and $49,807.23 in 1882. Appropriations are asked of $50,000 for 1883, and $60,000 for 1884 for the same account.

The directors conclude their report with the significant statement that, "Adhering to what we regard as the strictest economy compatible with success, we follow the unbroken tradition of the past and report an unexpended balance in the treasury."

HOSPITAL FOR THE INSANE.

That portion of the First Hospital for the Insane at St. Peter, destroyed by fire in 1880, has been restored, and is now in use. The east wing of the Second Hospital at Rochester, the construction of which was provided for in 1881, will be ready for occupancy in part by February 1 prox, and wholly completed early the present year. The capacity of the permanent buildings at St. Peter is sufficient for the proper care of 550 patients, and those at Rochester for 350, a total of 900. There are now connected with the two hospitals 872 patients—636 at St. Peter, and 236 at Rochester—a large number attached to the former institution still occupying the temporary buildings that have been in use for several years.

The problem of providing for the future wants of this class of unfortunates is one that will engage your serious attention, and any possible solution of it must involve expenditures to a large amount. For many years past there has been an annual average increase of about seventy in the insane population of the State. The increase in the future, the same conditions prevailing, must be somewhat larger. Provision already made is barely sufficient for another year, hence it is imperative that measures should be inaugurated at this session of the Legislature to add to the capacity of the State to care for these people.

With a view of determining the practicability of relieving the hospitals of the care of any inmates of whose sanity there was reason to doubt, or incurables who might be cared for elsewhere, I requested the commissioners appointed under the law for inspection of hospitals to visit them last August for a thorough examination in this respect. Their report was adverse to any discharge being made. Subsequently I held a conference with the trustees and superintendents of the hospitals and members of the commission, at which the subject of the care of these people and their future requirements was thoroughly discussed. As a result of this conference and of other investigation personally made, I am impressed with the belief that the provision the State must make for some years to come can be most economically effected by the construction of another wing to the hospital at Rochester corresponding to the one now approaching completion, and the erection of additional wards to either hospital from time to time as more room is demanded. These wards can be added at less than one-third the cost per capita, according to capacity, that the present elaborate structures have involved; and the maintenance of the additional patients thus provided for will call for a much less proportional expenditure than would be required in another hospital established in a new location.

The trustees, in their report, give expression to this judgment by the recommendation of the addition to the hospital at St. Peter, of a ward to accommodate fifty patients, for which they ask an appropriation of $25,000, to be expended the present year, and also the erection of another wing to the institution at Rochester, to cost, with furniture, $83,000, to be commenced in 1884. These estimates of the trustees, as also those for the purchase of additional land at each hospital for the purpose of providing employment for the patients, I recommend to your favorable consideration.

The officers of the two hospitals submit full information relative to their management during the biennial period just closed, from which it appears that care and efficiency still characterize the conduct of the affairs of these institutions.

The trustees report expenditures for the past two years as follows:

	First Hospital.	Second Hospital.
Building and furnishing	$133,723 18	$123,932 28
Current expenses, 1881	105,438 24	35,834 29
Current expenses, 1882	113,160 77	46,363 61

The estimated current expenses for the next two years are:

	First Hospital.	Second Hospital.
1883	$131,625 00	$62,400 00
1884	141,375 00	72,800 00

Further appropriations asked—

	First Hospital.	Second Hospital.
For additional heating and repairs	$18,000 00	....
For detached ward	25,000 00	....
For purchase of land, out-houses, water supply	8,400 00	$10,000 00
For lighting and repairs	....	21,000 00
For new wing with furniture	....	83,000 00

The average weekly cost of maintenance per capita was $3.76 and $3.82 for 1881 and 1882 respectively at St. Peter, and $4 and $4.13 at Rochester.

The cash value of farm products are given at $27,984.56 at St. Peter, and $9,712.50 at Rochester, for the two years.

In August last I designated a number of citizens of the State, distinguished for their acquaintance with, and interest heretofore manifested in the subject of public charities and reforms, to represent the State at the national conference of charities and corrections, held in Madison, Wis. They discharged the trust with which they were delegated with great credit to themselves and the State. I invite your attention to their report which will be submitted to you.

Among those best informed in regard to the charitable and correctional institutions of the several States, the opinion apparently prevails that there should be in every State a Board of State Charities by which general information and thorough inspection can be had of all charitable and correctional work. These boards have been established in nine States, the most noted for their excellent charitable and penal institutions, and others are now considering the question of adopting this system. These boards, acquainting themselves with the institutions of their several States, and their necessities, become the medium of communicating to the Legislature whatever relates to their management and their possible improvement. The local boards of trustees of the various institutions are not superseded; with them rest the same responsibilities and duties as before, but in the discharge thereof they are aided by such advisory supervision. The system in various States differs in some particulars, being advisory in some and administrative in others. The weight of opinion now inclines to favor making these boards advisory rather than executive, and that their purpose should be to keep the public and the Legislature fully advised of the condition and needs of the institutions subject to their supervision.

These boards are found to be most effective when they serve without compensation, their expenses simply being met by the

State. Such a board, if selected with proper care, being wholly non-political and composed of men of acknowledged ability and information, who would render this service from their interest in public reformatory and penal institutions would, from study of the charitable systems and institutions elsewhere, soon become an authority as to what is best and most necessary for their own State. They would inform themselves as to the condition and management of county almshouses, jails, reformatories, etc., and become not only fit to inspect, criticise and supervise the management of such institutions, but competent to advise as to what may be necessary in securing their efficiency.

EDUCATION.

The continued development of the educational interests of the State has been commensurate with its growth in other respects. The report of the Superintendent of Public Instruction is replete with valuable suggestions looking to the perfection of our system of education which is already the pride of every citizen. Though the superintendent's criticism of some features of the management of our common schools under existing laws and practices would indicate there is yet room for improvement in directions suggested, yet the facts established by the statistical exhibits, and other information furnished by his report, are an assurance that our system is gradually but surely attaining that degree of perfection which was the hope of its founders, and which will prove the crowning glory of the commonwealth.

There has been an increase in the enrollment in our public schools during the past two years of 22,638, the total being 196,238 in 1882 as against 173,600 in 1880. There have been erected 567 school buildings at a cost of $759,022. The total number of school houses now in use is given at 4,260, valued at $3,947,857. There has been secured $3,766,665.79 and expended $3,844,866.49 on account of our public schools during the past two years. The magnificent permanent school fund of the State, which it is estimated will amount to $18,000,000 when the lands are all sold, will constitute an endowment that will place our system of popular education upon a most enduring basis. The various recommendations of the Superintendent will command your attention, and need not be recapitulated here. I especially concur, however, in the recommendation that the position of County Superintendent be no longer a political office.

The three Normal Schools are now demonstrating their value and efficiency as an adjunct of our educational system. The State is realizing upon its investment in these institutions in a manner that promises ample returns for their cost and care. The influence of the well trained teachers supplied by these schools is apparent in the improved methods of instruction in our common schools and in the more elevated standard of the profession that has prevailed the past few years.

The enrollment at these schools has been as follows:

	1881.	1882.
Winona	445	439
Mankato	237	335
St. Cloud	257	254
Total	939	1,028

The current expenses account shows disbursements to have been:

	1881.	1882.
At Winona	$15,873 97	$17,007 98
At Mankato	14,904 20	14,651 47
At St. Cloud	15,071 43	14,442 38
Total	$45,859 60	$46,081 83

The report of the Normal Board accounts for $6,950 expended for permanent improvements the past year, and recommends alterations and enlargements of the buildings at Mankato and St. Cloud, the necessity for which is represented to be most urgent.

The schools have graduated 129 teachers the past two years, and 879 since their establishment.

Under the act for the encouragement of higher education aid has been extended the last year to thirty-eight schools throughout the State. The commission constituting the High School Board have sought by much effort to encourage and enlarge the work designed for these schools to accomplish, and they feel much gratification at the result already attained. It is expected that these schools in time will contribute liberally, from the students they may graduate, to swell the classes of the University.

The report of the Board of Regents will acquaint you with the affairs of the University. The regents express satisfaction with the work the University is doing and the progress it has made during the past two years in establishing itself upon a basis of recognized rank and usefulness.

Additions have been made to the campus of the University, and the grounds greatly improved by the enlarged limits to which they have thus been extended. Plans have been adopted for the erection of the new buildings long in contemplation and for which appropriations were made in 1881. It is the design of the board that the buildings for the gymnasium, museum, library, observatory and department of engineering shall be pushed to completion as rapidly as practicable.

Under the authority of the act of 1881 the regents have made an advantageous arrangement by which the experimental farm purchased some years ago is being disposed of and the proceeds invested in another farm in a much more desirable location for the purpose. The operation will show a handsome balance after the new farm is fully paid for and equipped.

PUBLIC EXAMINER.

The report of the Public Examiner contains many suggestions and recommendations which should receive your consideration.

From his examination of the State institutions it has been made to appear that much carelessness and neglect has prevailed in the past, relative to the official bonds of the treasurers or disbursing officers of some of the institutions and their boards of control. This state of things, induced somewhat by defects in the law, might have resulted in much public loss but for our good fortune in having these positions filled by men of integrity and responsibility. The defects referred to should be remedied without delay, and the provisions of the statute upon the subject of official bonds be made definite and mandatory in all cases.

The exhibit the Examiner presents of the banking interests of the State is interesting and suggestive. The growth of this branch of our commercial interests is indicated by the following summary:

	1881.	1882.
Capital stock	$ 7,990,850	$ 9,351,208
Surplus fund	1,190,425	1,600,977
Deposits	20,109,435	22,810,306
Loans and discounts	22,910,609	27,147,343

These totals would be largely augmented if full reports could be obtained from the private banks, of which there are 116 doing business in the State. The Examiner's suggestions relative to this class of banks are worthy of your consideration. The Examiner gives the receipts and disbursements of the county treasurers of the State as follows:

	1881.	1882.
Receipts	$5,836,644 72	$6,080,405 50
Disbursements	5,474,457 37	6,267,598 65

"The total absence of checks upon county treasurers" is a subject upon which the Examiner dwells with much earnestness, and his exposition of the defects in the existing system of conducting the business relating to county finances makes apparent the necessity for changes in the law. The remedy he proposes "that all receipts for money whether paid for taxes or for other purposes, should originate in the auditor's office," though involving some radical changes in existing statutes, is a proposition so evidently based on business principles that it appeals to the judgment at once. I ask your candid consideration of the concise statement of facts with which he illustrates this subject.

The present system of accounting, under the law, of the State Auditor and Treasurer is also seriously defective in some respects. A like absence of checks as in the case of county officers is revealed in the present method of keeping the accounts. Under the existing system funds to a large amount are paid to the Treasurer, of which the Auditor has no knowledge, and no means of check except as furnished by the Treasurer himself. It also appears that money is paid in considerable sums to the Auditor, of which the Treasurer has no knowledge until it is turned into the treasury. A remedy for this state of things will readily suggest itself in the requirement that all claims of the State, of whatever character, shall be collected by the Treasurer upon the Auditor's draft.

BOARD OF HEALTH.

The State Board of Health has done effective work the past year in checking the spread of epidemic diseases and in the enforcement of sanitary regulations throughout the State. In my judgment this Board should receive larger recognition and be clothed with more positive authority. Under the statutes the health officers are charged with certain important duties, whose discharge involves the exercise of authority not sufficiently defined by the law. It is of course admitted that there is no question in which the people at large are interested in a greater degree than the preservation of health. The establishing of sanitary regulations is an essential feature in the proper government of every community. A constant influx of immigration is liable at any time to bring with it contagious diseases which may become epidemic and, unless summarily dealt with, spread beyond control. It is of the highest importance that boards of health be vested with the authority necessary to efficient action in such emergencies.

The report of the State Board of Health suggests many changes in the law wherein experience in its practical operation has shown it to be defective. I commend the request and recommendations of the report to your favorable consideration.

BOARD OF IMMIGRATION.

The State Board of Immigration reports the expenditure of $9,900.45 in the preparation of pamphlets, circulars, etc., in different languages, which were distributed to the extent of 77,800 pamphlets, 39,000 circulars with map of the State, 3,500 reports of a statistical caracter. The secretary estimates that the population of the State has been increased the past two years over 100,000 by immigration alone. I have no doubt this board is efficient in the work it was created to perform. The judicious distribution of printed matter representing the "resources and capabilities" of our State, throughout those countries from whence there is a continuous flow of emigration, should be continued, and I recommend a moderate appropriation for that purpose.

INSURANCE COMMISSIONS.

The Insurance Commissioner's report presents an interesting review of the business of his department since the establishment of the office in 1872. The history of insurance in the State, as illustrated by the comprehensive tables and other data of his report, is an interesting subject for examination. The growth of the business is shown by the following comparative statement:

	Risks Written.	Premiums.	Losses.
1881	$122,070,500	$1,596,353	$914,950
1882	48,718,176	689,738	306,839
Increase	$ 73,352,324	$ 906,615	$608,111

The Commissioner remarks that "ten years ago, from an insurance standpoint, Minnesota was a small and inconspicuous State; to-day, twenty-five states must yield the precedence to her."

HISTORICAL SOCIETY.

The Historical Society suffered consideracle loss by the burning of the capitol. Its main library was mostly saved in good condition, but the fine museum of archæological and historical curiosities was nearly entirely destroyed, together with many publications, pictures, etc., that constituted an interesting feature of its collections. The valuable manuscripts and greatly prized collection of bound Minnesota newspapers were in a fire-proof vault and escaped unharmed. The society at once removed to the basement of the temporary capitol and began vigorous efforts to repair its losses. The library was soon restored, and considerable additions have since been made until it now numbers over 10,0000 volumes of carefully selected and valuable works. The society is now in a very prosperous condition, and prepared to enter upon a career of more enlarged usefulness than before the fire interrupted its work. It has been its desire for many years to errect on its own ground near the capitol a building constructed with special reference to its peculiar needs. For this purpose a subscription of $15,000 has already been pledged. It is the intention, when $25,000 is thus raised, to ask the State to contribute an equal amount. The great usefulness of the society, its past energetic efforts to fulfill its objects and its success in the face of many difficulties, should commend such a request when made to a favorable consideration.

THE LIBRARY.

Among the most serious calamities entailed by the burning of the old capitol was the almost total loss of the public library. As appears by the report of the State Librarian, there were saved from the fire but 849 volumes out of over 13,000. The foresight of the Librarian had provided an insurance of $10,000 upon the library, though no legislative authority had been given for doing so. With this amount, which was promptly paid, and the appropriation of $9,000 made for the purpose, there have been purchased 3,899 volumes. There have been received by donation 4,634 volumes, and by exchange 370, making a total of 9,752 volumes now in the library. The Librarian cites many instances of great generosity upon the part of the states and individuals in donations of valuable books, for which suitable acknowledgment was duly made.

LOGS AND LUMBER.

Reports of surveyors general of logs and lumber have been made according to law and are herewith transmitted. They show the following transactions:

Logs scaled, feet—	1881.	1882.
First district	260,045,720	276,595,640
Second district	238,648,210	319,211,780
Lumber manufactcred, feet—	1881.	1882.
First district	No report.	126,820,500
Second district	317,308,970	423,009,250
Fifth district, estimated		239,000,000

FISH CULTURE.

The Fish Commissioners submit a report containing much interesting information upon the general subject of fish culture, and in their detailed exhibit show much industry upon their part in the distribution of whitefish, trout, salmon, and numerous other varieties of fish in the waters of the State. There were distributed during two years 1,683,168 fish, the product of the State hatchery.

AGRICULTURE.

The agricultural statistics of the State as presented by the report of the Commissioner of Statistics indicate the existence of a progressive spirit pervading this great industry of our people. There is gratifying evidence of improved methods and a more intelligent system of management in this important interest, which is the basis of the wealth and prosperity of the State. In sections that have heretofore been almost wholly devoted to the production of a single staple, recent harvests have returned in gratifying abundance a great diversity of crops, and as an exporter of stock and products of the dairy, Minnesota makes a showing full of promise for the future. There has been a marked increase of interest in stock raising, and much effort made to introduce those breeds best adapted to our climate. The officers of the State Agricultural Association informed me that parties who exhibited fine breeds of stock from abroad at our last State fair have since introduced such stock in large numbers in different parts of the State by sale to farmers who become acquainted with their superior qualities at that exhibition; that the demand for such stock for breeding purposes throughout the State is active, and that they believe Minnesota is making rapid strides towards becoming a large stock-producing State. It is our duty in every practicable way to encourage the growing interest in this new departure of our agriculture. I believe a most effective way in which such encouragement may be extended is to aid the State and county associations in their annual exhibitions. The State should grant them liberal appropriations, and the people should encourage them by their personal presence. I recommend an increase of appropriation to the State Association to $3,000 per annum, and a like amount to be distributed to the county societies.

We are intelligently committed to the policy of encouraging forestry. In that connection I commend the suggestion that the

State assume the expense of printing a considerable edition of a revised manual of instructions for tree culture, and for its free distribution to those who seek information.

The American Forestry Congress is expected to hold its next meeting in St. Paul, next August. It will be an occasion of great importance to our people. The use of the rooms of the capitol are tendered as far as they may be serviceable, and it seems proper that the State Forestry Association be provided funds at least sufficient for the manual referred to, and for their incidental expenses in connection with the expected meeting.

RAILROADS.

The vast aggregation of capital concentrated within the control of the monster corporations of the country within the past few years, are suggestive of danger and possible disaster to the vital interests of the public. The increasing aggressiveness and the bolder defiance of corporate power, especially represented by great railroad corporations, must ultimately be met and restrained by the power and authority of the State. Through consolidation and absorption the entire railroad system of the country is rapidly passing under the control of a few men who may by the despotic use of the power they thereby wield, greatly injure the material interests of entire communities of people. The knowledge that such power lies in the control of these huge monopolies to be exercised almost at will, creates a feeling of disquiet and distrust, if not dismay, among the people. While we recognize the fact that these corporations confer great benefit upon the country, that they are mighty in their influence for the spread and development of our civilization, and should receive the cordial support of public sympathy in the exercise of their reasonable and legitimate functions, yet they should on their part feel that they are the servants and not the masters of the public; that like the citizen, they are amenable to laws whose majesty at once affords them protection and commands them to respect its restraints. They should be reminded that they are creatures of the authority of the State; that it has endowed them with valuable franchises and enormous subsidies, and that it affords them that protection and enjoyment of possession which gives to all property its greatest value. They should be impressed with the fact that their legitimate resources are wholly derived from the patronage of the public, and that their proper and legal relation to the public can only be maintained by dispensing exact justice to every individual and locality with which they have to deal.

That the State has power to exercise control, within reasonable limits, over these corporations, is a principle long since established, and that it has not exercised such control to a greater degree is due to the patience and forbearance of the public. While the authority of the State should be exercised with the utmost care and prudence, and all the rights of these corporations respected and given the amplest protection, yet they should be placed under such restraint and accountability as will guarantee the people equal protection of their rights and secure prompt redress of every just cause of complaint. The State has been slow to lay its restraining hand upon corporate power. The policy has prevailed to grant corporations the largest liberty consistent with public rights, but a too free exercise of that liberty has sometimes taken the form of license, and the interests of the public have been ignored as though they did not exist. Indeed, recent events suggest the necessity of legislation to protect these corporations from each other.

The "war of rates" that was lately inaugurated between the rival systems operating in the Northwest developed some features in the policy of railway management to which public attention had not before been specially directed. The question of "territorial rights" has become an essential element in the economy of railroad management. With the pretensions and the assumptions of an autocrat, a railroad manager publicly asserts the right to control the territory his system of roads traverses, and gives notice that it must not be trespassed upon, under penalties that involve disaster to the business interests of the country. Corporations have become to such an extent a law unto themselves, that continued, unrestrained indulgence in the immunities they assume, will in time subject the country to a domination against which the people will rebel.

The subject of legislative action imposing restraints upon the management of railroads is one that should command your earnest and careful attention. The foregoing considerations are not suggested altogether by the attitude of the corporations existing or operating in this State, but they are applicable in a modified form to the question as presented before you.

The very able and comprehensive report of the Railroad Commissioner will furnish you much valuable information obtained by thorough research and industrious investigation. His exhaustive discussion of the railroad problem in its several phases, as presented at this time, covers many suggestions of much practical value. His recommendations are numerous, and of a character that point toward progress in the solution of this complex problem.

The classification of railroads upon the basis of income, and the establishment of a "board of control," to fix rates of transportation, limited by a maximum for each class and fixed by law, would, I believe, provide a remedy for those complaints of discrimination and extortion to which the commissioner's attention is being constantly called. I recommend such legislation as will embody this principle. It may be said that legislation of somewhat like character some years ago was disappointing in its results. To this may be answered that the conditions are greatly changed. Then the railroads of the State were struggling against adverse cirsumstances. Many of them were practically bankrupt; their lines were largely located in sparsely populated or wholly uninhabited districts, and in some cases without income sufficient to meet their expenses. A decade has wrought a wondrous change in our railroads, as in all other material interests of the State. They are now, with hardly an exception, wealthy corporations, earning dividends and carrying a surplus in their treasuries. The wilderness they traversed has been occupied by populous communities; their tonnage has increased eight-fold, and their equipment is taxed to its utmost to do the business pressing upon them. The legislation of 1871 was crude and ill-considered. The same principle embodied in provisions comprehending a more enlightened understanding of the question, gained by the experience of a decade, would prove a success where it was a failure ten years ago.

The Railroad Commissioner recommends that telegraph companies be placed on the same basis as to inspection, surveillance and taxation; that sleeping car companies, now untaxed, be required to report to him and pay taxes on basis of income; that more effective legislation be had to compel railroad companies to perform their duty as common carriers in the shipment of grain; that a railway commission composed of the Governor, Auditor and Railroad Commissioner for purposes of appeal and more important questions be established, and that more power be given the Commissioner's office over railway companies for the enforcement of existing laws and regulations affecting railways. The reasons for each of these and other recommendations of the report will appear in his elaborate exposition of each subject.

During the year closing with December 1, 1882, there were constructed 531.87 miles of new railway, making a total of 3,749.13 miles within the boundaries of the State. The total cost of the railroads of the State is given at $149,312,631.30, an average of $43,934.12 per mile. The total amount given to these railroads by the people of Minnesota in lands and bonds on a cash basis, as estimated by the Commissioner, is $76,489,790, an average of $23,331 per mile.

The earnings of all lines in the State for the year ending June 30, were: From passengers, $4,816,218.14; freight, $13,158,697.44; miscellaneous, $830,277,58; total, $18,805,193.16. Total operating expenses, $10,221,783.69. Average earnings per mile, $5,642.24; expenses, $3,066.90. There were 9,962,393 passengers carried and 5,883,120 tons of freight transported during the year.

The following statement shows the amount of taxes paid to the State by railroad companies since 1864:

From 1864 to 1872	$ 322,523 50
1873	108,779 65
1874	109,020 01
1875	132,119 13
1876	145,794 58
1877	161,150 96
1878	200,171 14
1879	260,476 44
1880	315,482 54
1881	415,222 99
1882	470,593 33
Total	$2,641,334 27

Your particular attention is called to the cases cited by the Commissioner of an effort upon the part of two of the companies to evade payment of the taxes upon part of their income. It would be a dangerous precedent if they should succeed in establishing the claim for immunity which has been set up in those cases. If further legislation is required to compel these companies to pay their full tribute to the State it should be promptly enacted.

STATE INSPECTION OF GRAIN.

The grievous complaints of the agricultural class in some sections of the State in regard to the warehousing and grading of grain, is a subject that demands attention. The abuses complained of are of a character that cannot be ignored, though they may not be fully sustained by the facts in all cases. It is equally in the interest of the buyer as well as the seller of grain, that some system be devised by which the differences arising between them may be arbitrated and settled through agencies entirely disinterested. The farmer now complains that he has no option or appeal in the transaction involving the disposition of his product, but must perforce accept the judgment of the buyer as to its quality and value. A system of State inspection which comprehends the fixing of grades of grain and the adoption of rules regulating the management of elevators and warehouses, has been tried with success in other States. I recommend a careful consideration of this subject upon your part, and an examination of the methods and results of such a system in its operation elsewhere, with a view to its adaptation to the exigencies of the situation in this State.

REMOVAL OF JUDGES.

Twice within the last five years impeachments have been prosecuted against district judges. The disgraceful details of evidence occupied the public attention week after week, and the expense in one case was more than ten times the salary of the Chief Justice.

Impeachment is authorized by most State constitutions in the case of judges of district courts as well as other State officers, but there is also provided in a majority of the States a less imposing and expensive means of removing such judges for reasonable cause. This is by the concurrent action of both branches of the Legislature, for which in a majority of cases the assent of two-thirds of all the members elected to each is requisite. Formal charges are required, which, in some States, may be only for minor offenses, or causes not impeachable, and in others for any reasonable cause, whether impeachable or not. The accused, of course, has his right of defense. Many years may probably elapse before we have occasion to again desire the immediate removal of a district judge, but the necessity for such a result at some time is not beyond reasonable expectation. I recommend the proposal as a constitutional amendment of a new section, providing for the method of removal by legislative address for any reasonable cause, impeachable or otherwise.

THE MILITIA.

The moderate encouragement given the militia organizations of the State by the act of 1881 has had the effect to considerably stimulate the zeal and martial spirit of the volunteer companies then existing, and to induce the formation of additional companies to the limit of the full quota allowed by that act. As appears by the report of the adjutant general, there have been organized within the past year companies in St. Paul, Minneapolis, Albert Lea, Fairmont, Mankato, Austin and Fergus Falls. The Minnesota National Guard now consists of ten companies of infantry, two troops of cavalry, and two sections of artillery, all armed as infantry except one section of artillery, which is well equipped in that arm of the service. This force is organized into two battalions of infantry and one independent battery. The guard has greatly advanced in disipline and efficiency during the past year, much of which is due to the instruction received during the encampment held last July. The opportunity that occasion afforded for practical experience of soldiers on duty was fully improved, and the beneficial results of the experience acquired have been most manifest in the improved *esprit du corps* of the entire organization and the stimulus given to its growth. I deem it important that all proper aid and encouragement be given the State militia. These annual encampments are very useful in imparting such instructions as will enable the organization to act together with intelligence, and secure that degree of efficiency that will make the militia reliable for such possible service as it may be called upon to perform. The expense is moderate, and I therefore recommend an appropriation for the purchase of tents and other camp equipage sufficient for a regiment. There are several localities now awaiting authority to organize companies. A moderate increase in the organization would seem to be suggested by the growth of our population. I therefore recommend that the authorized aggregate force of the Minnesota National Guard be increased to sixteen companies of infantry and two sections of artillery, and the annual appropriation for its maintenance be increased to $12,000.

The Adjutant General's office has procured the allowance of pension claims during the past two years to the amount of $181,687.59. There are now pending 1,624 cases, of which the office has charge. New claims are being filed in number sufficient to prevent the list of those pending to become preceptibly reduced.

BIENNIAL ELECTIONS.

The advantage accruing to the State by the adoption of biennial sessions of the Legislature is so generally recognized that I doubt if the wisdom of the charge is now questioned in any quarter. It is no longer regarded as an experiment, but a demonstrated benefit in the economy of our State affairs. I believe experience would induce a similar judgment in behalf of biennial elections. The people are surfeited with the agitation and excitement attendant upon our often recurring elections. They would accept as a measure of relief a proposition to have them occur but once in two years. I have no doubt they would emphatically approve an amendment to the constitution embodying this proposition, and I earnestly recommend that your body provide for the submission of such an amendment at the next general election. As a question of economy it recommends itself with special force. The expense of each general election held throughout the State is estimated to be fully $100,000. The saving of this sum every alternate year would prove an appreciable relief to the burdens imposed upon the people. I believe this change would also have a healthful influence upon and elevate the character of our political contests. The better elements of the community, feeling it less a tax upon their time, would give more attention to their political duties, and the tendency would be to eliminate much that is objectionable, which now marks and demoralizes our politics. Some changes would have to be made in the terms of State and county officers, and elections must be held in the year in which members of Congress are chosen. In this connection I would also suggest that the date be fixed on which the political year of the State shall commence. The indefiniteness and uncertainty which now attaches to this matter renders possible complications of an embarrassing character.

The growth of population in our State institutions involves a corresponding increase in the consumption of every class of supplies. A portion of these supplies, more particularly fuel, could undoubtedly be purchased with greater economy if done by some one officer of the State, who, by inviting bids, could secure the benefit of competition from abroad. The consumption of coal at all the institutions amounts to several thousands tons per annum. This could be purchased in the manner indicated, for delivery at different points in quantities required, at much less relative prices than those now paid. Your attention is invited to this matter.

I transmit for your information and such action as you may deem best to take thereon, a petition from a number of citizens of the State who held claims against the Transit Railroad Company, which were filed for adjustment under the act of 1881, "providing for the adjustment of certain alleged claims against the State," asking that the balance of their claims be paid by the State.

In July last, I received from the treasury of the United State drafts to the amount of $37,203.57 in allowance of a claim of the State under the act of Congress, approved Feb. 26, 1857, for 5 per centum of the net proceeds of the sale of lands upon the Winnebago and Sioux reservations. The agent appointed by the governor in 1874 (Gen. J. B. Sanborn), under the joint resolution of the Legislature of that year, "authorizing the appointment of an agent to prosecute certain claims against the United States," made claim to 15 per cent. of the amount so allowed for services in prosecuting this claim, under his contract made with the State concurrent with his appointment. The matter was submitted to the Attorney General, who gave it as his opinion that authority did not exist for paying the claim. In that opinion he says: "The joint resolution authorizes the governor to appoint an agent for the purposes therein named, and directs that a stipulation or contract be made with such agent of the tenor stated in said resolution. No other or further power in the premises is conferred upon him. I am therefore of the opinion that when such agent was appointed, and a contract made with him by the governor of the State, that the duties of the executive department relative thereto were at an end. That all questions arising under such contract were reserved by the Legislature, and must be settled and adjudicated by it; that your excellency, therefore, has no authority to adjust or pay this claim." Other questions were raised by the Attorney General which need not be quoted, as his opinion in full, together with correspondence had with the treasury department upon the subject, are herewith transmitted.

The joint resolution under which the agent was appointed provides that his compensation "shall only be paid in case of successful issue of said prosecution, and only out of moneys realized from the payment of said claim and not otherwise." At the request of the agent, and under the advice of the Attorney General, I have retained 15 per cent. of the amount received as above stated ($5,580.53), and deposited the same in bank to the credit of the Governor of the State, to await your action in the matter. If you shall decide to allow the claim its payment should be authorized by joint resolution.

The State has made claims through the agent to other sums on account of public lands located with military land warrants and otherwise disposed of, the allowance of which will probably depend somewhat upon the zeal and industry with which they are prosecuted. It is due to the agent, and I think would prove of advantage to the State, that authority be granted the governor, within well defined limits, to adjust claims for this service of the State agent.

CONCLUSION.

The foregoing reflections and recommendations are suggested by such an examination of the facts bearing upon each subject referred to as I have been able to make. They are the expressions of my judgment submitted for your view. You are fresh from the people, and presumably acquainted with their views and their demands. Your action here will no doubt reflect their wishes, and result in the promotion of their best interests. To co-operate in securing that end will be the earnest wish and purpose of the executive department.

L. F. HUBBARD, Governor.

ANNUAL REPORT

OF THE

STATE TREASURER

OF

MINNESOTA.

FOR THE

FISCAL YEAR ENDING NOV. 30, 1882.

MINNEAPOLIS:
JOHNSON, SMITH & HARRISON.
1883.

1-1

STATE OF MINNESOTA.
TREASURER'S OFFICE, St. Paul, Dec. 1, 1882.

To His Excellency L. F. Hubbard,
Governor of Minnesota:

SIR—I have the honor to transmit herewith the report of the transactions of this office for the fiscal year ending November 30th, 1882.

Very respectfully,
CHARLES KITTELSON,
State Treasurer.

ANNUAL REPORT

OF THE

State Treasurer of Minnesota,

FOR THE

FISCAL YEAR ENDING NOV. 30, 1882.

STATE OF MINNESOTA,
TREASURER'S OFFICE, ST. PAUL, Dec. 1, 1882.

TO THE HONORABLE SENATE AND HOUSE OF REPRESENTATIVES:

I have the honor to transmit herewith the Annual Report of the transactions of this office for the fiscal year ending Nov. 30, 1882.

The receipts were as follows:

For revenue fund	$ 402,664 42
For state institutions fund	473,938 5
For interest fund	14,898 74
For sinking fund	64,531 52
For seed grain sinking fund 1878	18,405 98
For permanent school fund	880,957 19
For general school fund	250,726 18
For permanent university fund	210,800 94
For general university fund	34,692 20
For internal improvement fund	17,938 89
For internal improvement land fund	294,170 84
For attorney 12th district fund	2,201 08
For forestry fund	25,686 10
For swamp land fund	2,018 68
For school text book fund	12,066 8
TOTAL	$ 2,643,671 52
Balance in Treasury December 1, 1881	557,744 2
Total Receipts	$ 3,201,415 79

The disbursements were as follows:

From revenue fund	$ 467,112 42
From state institutions fund	536.487 98
From interest fund	12,811 15
From sinking fund	80,000 00
From seed grain sinking fund	24,000 00
From permanent school fund	1,038.715 68
From general school fund	262,044 64
From permanent university fund	241,080 00
From general university fund	53.894 18
From internal improvement fund	12.150 00
From internal improvement land fund	322,000 00
From attorney 12th district fund	2.201 08
From school text book fund	11,420 28
Total disbursements	$ 3.058.317 21

Leaving balance in treasury on December 1, 1882, as follows:

To state institutions fund	$ 20.246 91	
To interest fund	6,818 17	
To sinking fund	582 31	
To seed grain sinking fund, 1878	800 86	
To permanent school fund	104.172 54	
To general school fund	18.657 27	
To permanent university fund	16.003 11	
To general university fund	12,499 98	
To internal improvement fund	10.653 88	
To internal improvement land fund	65.910 32	
To forestry fund	25 686 10	
To swamp land fund	2,013 68	
To school text book fund	1.863 82	
	$ 255.908 94	
Deduct revenue fund overdrawn	112,810 36	
Actual amount in treasury		$ 143,098 58
		$ 3 201,415 79

REVENUE FUND.

RECEIPTS.

From county treasurers, see statement "A,"		$ 316,315 75
From stumpage, see statement "C."		308 82
From miscellaneous sources, see statement "D,"		86.022 85
Total		$ 402.641 42

DISBURSEMENTS.

Overdrafts in fund Dec. 1, 1881	$ 78.342 36	
Paid state auditor's warrants	467,112 42	
Total	$ 545,454 78	
Leaving an overdraft on Dec. 1, 1882		$ 142,810 36
		$ 545.454 78

STATE INSTITUTIONS FUND.

RECEIPTS.

From county treasurers, see statement "A,"	$ 3,381 87
From railroad companies, see statement "B,"	470,556 65
From balance in treasury Dec. 1, 1881	82,746 37
Total	$ 556,684 89

DISBURSEMENTS.

Paid state auditor's warrants	$ 536,437 98	
Leaving balance in treasury Dec. 1, 1882	20,246 91	
Total	$ 556,684 89	

INTEREST FUND.

RECEIPTS.

From county treasurers, see statement "A,"		$ 12,898 74
From balance in treasury Dec. 1. 1881		6,230 58
Total		$ 19,129 82

DISBURSEMENTS.

Paid state auditor's warrants	$ 12,311 15	
Leaving balance in treasury Dec. 1, 1882	6,818 17	
Total	$ 19,129 32	

SINKING FUND.

RECEIPTS.

From county treasurers, see statement "A,"		$ 64,551 52
From balance in treasury Dec. 1, 1881		16,030 79
Total		$ 80,582 31

DISBURSEMENTS.

May 20, redeemed 42 Minnesota bonds, loan of 1873	$ 42,000 00	
Oct. 31, redeemed 33 Minnesota bonds, loan of 1873	33,000 00	
Nov. 29, redeemed 5 Minnesota bonds, loan of 1873	5,000 00	
Leaving balance in treasury Dec. 1, 1882,	582 31	
Total	$ 80,582 31	

SEED GRAIN SINKING FUND, 1878.

RECEIPTS.

From county treasurers, see statement "A,"		$ 18 405 93
From balance in treasury Dec. 1, 1881		6,394 9
Total		$ 24,800 85

DISBURSEMENTS.

May 20, redeemed 13 Minnesota bonds, loan of 1878	$13,000 00	
Oct. 31, redeemed 7 Minnesota bonds, loan of 1878	7,000 00	
Nov. 29, redeemed 4 Minnesota bonds, loan of 1878	4.000 00	
Leaving balance in treasury on Dec. 1, 1882	800 85	
Total	$ 24,800 85	

PERMANENT SCHOOL FUND.

RECEIPTS.

From county treasurers, see statement "A,"		$ 231,581
From railroad companies, see statement "B,"		20
From stumpage, see statement "C,"		34,216
From miscellaneous sources, see statement "D,"		535,188 34
From balance in treasury Dec 1, 1881		317,091 98
Total		$1,138,049 17

DISBURSEMENTS.

Bought 1033 Minn. railroad adjustment bonds	$1,033,000 00	
Paid sundry State Auditor's warrants	715 63	
Transferred Internal Improvement land fund	161 00	
Leaving balance in treasury Dec. 1, 1882	104,172 54	
Total	$ 1.138,049 17	

The Permanent School Fund now holds the following securities:

Minnesota 7 per cent. currency bonds, loan of 1873	$ 26,000 00
Minnesota 6 per cent. currency bonds, loan of 1878	61,000 00
United States 6 per cent. currency bonds	299,000 00
Missouri 6 per cent, currency bonds	868,000 00
Minnesota 4½ per cent. railroad adjustment bonds	1,033,000 00
Total	$ 2,286,000 00

GENERAL SCHOOL FUND.

RECEIPTS.

From county treasurers, see statement "A,"	$ 167,157 46
From stumpage, see statement "C,"	1,117 25
From miscellaneous sources, see statement "D,"	82,451 42
From balance in treasury Dec. 1, 1881	0,015 05
Total	$ 280,741 18

DISBURSEMENTS.

Paid State Auditor's warrants	$ 262,044 61
Transferred to Internal Improvement land fund	39 27
Leaving balance in treasury Dec. 1, 1882	18,657 27
Total	$ 280,741 18

Of the above balance in treasury $9,675.63 belong to the apportioned school fund on outstanding warrants.

PERMANENT UNIVERSITY FUND.

RECEIPTS.

From county treasurers, see statement "A,"	$ 12,491 85
From stumpage, see statement "C,"	29,632 59
From miscellaneous sources, see statement "D,"	168,676 50
From balance in treasury Dec. 1, 1881	46,232 17
Total	$ 257,033 11

DISBURSEMENTS.

Bought 241 Minnesota railroad adjustment bonds	$ 241,000 00
Paid State Auditor's warrants	30 00
Leaving balance in treasury Dec. 1, 1882	16,003 11
Total	$ 257,033 11

The Permanent University fund now holds the following securities:

Minnesota 4½ per cent. railroad adjustment bonds	$ 241,000 00

GENERAL UNIVERSITY FUND.

RECEIPTS.

From county treasurers, see statement "A,"	$ 21,503 78
From stumpage, see statement "C,"	1,715 92
From miscellaneous sources, see statement "D,"	11,472
From balance in treasury, Dec. 1, 1881	31,701 91
Total	$ 66,394 11

DISBURSEMENTS.

Paid State Auditor's warrants	$ 53,894 13
Leaving balance in treasury Dec. 1, 1882	12,499 98
Total	$ 66,394 11

INTERNAL IMPROVEMENT FUND.

RECEIPTS

From U. S. Government, percentage on land sales	$ 17,938 39
From balance in treasury, Dec. 1, 1881	4,865 4
Total	$ 22,803 88

DISBURSEMENTS.

Paid State Auditor's warrants	$ 12,150 00	
Leaving balance in treasury, Dec. 1, 1882	10,653 88	
Total	$ 22,803 88	

INTERNAL IMPROVEMEMT LAND FUND.

RECEIPTS.

From county treasurers, see statement "A,"	$ 65,030 91
From railroad companies, see statement "B,"	16 68
From stumpage, see statement "C,"	498 2
From miscellaneous sources, see statement "D,"	228,624 50
From balance in treasury, Dec. 1, 1881	93,539 71
Transferred from Permanent school fund	161 00
Transferred from General school fund	89 27
Total	$ 387,910 32

DISBURSEMENTS.

Bought 322 Minnesota railroad adjustments bonds	$ 322,000 00
Leaving balance in treasury, Dec. 1, 1882	65,910 32
Total	$ 387,910 32

The internal improvement land fund now holds the following securities:

Minnesota 4½ per cent. railroad adjustment bonds	$ 322,000 00

ATTORNEY 12TH DISTRICT FUND.

RECEIPTS.

From counties forming district, see statement "D,"	$ 2,201 03

DISBURSEMENTS.

Paid State Auditor's warrants	$ 2,201 03

FORESTRY FUND.

RECEIPTS.

From county treasurers, see statement "A,"	$ 25,6 10

DISBURSEMENTS.

Leaving balance in treasury, Dec. 1, 1882	$ 25,686 10

SWAMP LAND FUND.

RECEIPTS.

From stumpage, see statement "C,"	$ 2,

DISBURSEMENTS.

Leaving balance in treasury, Dec. 1, 1882	$ 2,013 68

SCHOOL TEXT BOOK FUND.

RECEIPTS.

From county treasurers, see statement "E,"	$ 12,066 39
From balance in treasury, Dec. 1, 1881	1,217 66
Total	$ 13,284 05

DISBURSEMENTS.

Paid Auditor's warrants	$ 11,420 23
Leaving balance in treasury, Dec. 1, 1882	1,863 82
Total	$ 13,284 05

RECAPITULATION OF RECEIPTS, EXPENDITURES AND BALANCES

During the Fiscal Year, Ending November 30, 1882.

FUNDS.	Balances in Treasury Dec. 1, 1881. Dr.	Balances in Treasury Dec. 1, 1881. Cr.	Receipts from Co. Treasurers.	Receipts from Miscellaneous sources.	Total Receipts.	Expenditures.	Balance in Treasury on Dec. 1, 1882. Dr.	Balance in Treasury on Dec. 1, 1882. Cr.
Revenue Fund	78,342 36	....	316,315 75	86,328 67	402,644 42	467,112 42	142,810 36	....
State Institution Fund	....	82,746 37	3,381 87	470,556 65	473,938 52	536,437 98	....	20,246 91
Interest Fund	....	6,230 58	12,898 74	....	12,898 74	12,311 15	....	6,818 17
Sinking Fund	....	16,050 79	64,531 52	....	64,531 52	8,000 00	....	582 31
Seed Grain Sinking Fund	....	6,394 92	18,405 93	....	18,405 93	24,000 00	....	800 85
Permanent School Fund	....	317,086 98	231,581 86	589,375 33	820,957 19	1,033,715 63	....	104,172 54
General School Fund	....	30,015 05	167,157 46	83,568 67	250,726 13	262,044 64	....	18 657 27
Permanent University Fund	....	46,237 17	12,491 85	198,309 09	210 800 94	241,030 00	....	16,008 11
General University Fund	....	31,701 91	21,503 78	13,188 42	34,692 20	53,894 13	....	12,499 98
Internal Improvement Fund	....	4,865 49	....	17,938 39	17,938 39	12,150 00	....	10,653 88
Internal Improvement Land Fund	....	93,539 71	65,030 91	229,139 43	294,170 34	322,000 00	....	65,910 82
Attorney 12th District Fund	....	....	....	2,201 03	2,201 03	2,201 03	....	....
Forestry Fund	....	....	25,686 10	....	25,686 10	....	....	25,686 10
Swamp Land Fund	....	....	....	2,013 68	2,013 68	....	....	2,013 68
School Text Book Fund	....	1,217 66	12,066 39	....	12,066 39	11,420 23	....	1,863 82
	78,342 36	636,086 63	951,052 16	1,692,619 36	2,643,071 52	3,058,317 21	142,810 36	285,908 94
Deduct Revenue Fund Overdrawn		78,342 36	Add Bal. in Treas. Dec. 1, 1881.		557,744 27	Deduct Rev Fd. overdrawn		142,810 36
Leaving Balance in Treasury Dec. 1, 1881		557,744 27			3,200,815 79	Bal. in Treas. Nov. 30, 1882.		143,098 58

Deposited as follows:

In First National Bank	$41,798 01
In Second National Bank	5,763 90
In Merchants' National Bank	46,138 77
In German American Bank	11,320 28
In Bank of Minnesota	38,077 62
Total	143,098 58

SUMMARY OF INVESTED FUNDS.

KIND OF FUNDS.	Permanent School.	Permanent University.	Internal Improvement Land Fund.	Total.
Minnesota 7 per cent Currency Bonds, Loan of 1873	$ 25,000	....	....	$ 25,000
Minnesota 6 per cent Currency Bonds, Loan of 1878	61,000	....	....	61,000
United States 6 per cent Currency Bonds	299,000	....	....	299,000
Missouri 6 per cent Currency Bonds	868,000	....	....	....
Minnesota 4½ per cent Railroad Adjustment Bonds	1,033,000	241,000	322,000	1,596,000
Total	2,286,000	241,000	322,000	2,849,000

The following table shows the State collection of taxes from 1860 to 1882.

Tax collected in 1860	$111,918 58
Tax collected in 1861	100,186 83
Tax collected in 1862	133,001 73
Tax collected in 1863	177,170 43
Tax collected in 1864	195,418 52
Tax collected in 1865	218,963 38
Tax collected in 1866	252,646 96
Tax collected in 1867	286,447 32
Tax collected in 1868	276,186 93
Tax collected in 1869	318,556 56
Tax collected in 1870	396 460 83
Tax collected in 1871	410,069 66
Tax collected in 1872	418,283 71
Tax collected in 1873	467,036 5
Tax collected in 1874	575,167 66
Tax collected in 1875	461,793 89
Tax collected in 1876	442,699 32
Tax collected in 1877	432,724 86
Tax collected in 1878	478,272 81
Tax collected in 1879	582,936 40
Tax collected in 1880	380,905 58
Tax collected in 1881	494,558 80
Tax collected in 1882	402,600 08

Collections for seed grain sinking fund are not included in above amounts.

STATE LOANS.

The State loans, represented by bonds, now consist of $25,000 of the loan of 1873 and $61,000 of the loan of 1878, all of which is held by the Permanent School Fund, and $4,253,000 railroad adjustment bonds, of which the Permanent School Fund holds 1033, the Permanent University Fund 241, and the Internal Improvement Land Fund 322 bonds of $1,000 each The remainder are held by outside parties, making the total indebtedness of the State at this date $4,339,000.

INTEREST ON DEPOSITS.

The amount received from this source for the fiscal year ending November 30, 1882, was $8,417.23, all of which was covered into the revenue fund.

MINNESOTA STATE RAILROAD BONDS.

The following number of old Minnesota State railroad bonds having been exchanged for Minnesota railroad adjustment bonds, were destroyed as directed by section 2, chapter 1, General Laws, extra session, 1881.

On January 17th, 1882:

439 bonds issued to Transit railroad company.
544 bonds issued to Minneapolis & Cedar Valley railroad company.
595 bonds issued to Minnesota & Pacific railroad company.
574 bonds issued to Southern Minnesota railroad company.

2,152

On April 3d, 1882:

48 bonds issued to Transit railroad company.
24 bonds issued to Minneapolis & Cedar Valley railroad company.

72

On October 2d, 1882:

2 bonds issued to Transit railroad company.
20 bonds issued to Minneapolis & Cedar Valley railroad company.
1 bond issued to Minnesota & Pacific railroad company.

23

Total number bonds destroyed:

On January 17, 1882	2,152
On April 3, 1882	72
On October 2, 1882	23
	2,247

REVENUE AND STATE INSTITUTION FUNDS.

I would respectfully call your attention to the condition of the revenue and State institutions fund.

By an act of the extra session of 1881, the treasurer was authorized to overdraw the revenue fund to the extent of $150,000, and to take this amount from any or all other funds. It was the intention of this act to relieve the revenue fund until enough taxes had been collected to place it again on an even basis.

The expenditures of the last year, however, have been far in excess of the income, owing to the rebuilding of the capitol, extra session and high court of impeachment, and the close of the fiscal year finds the revenue fund overdrawn $142,810.36. The balance authorized to be overdrawn will not suffice to pay current expenses until the day set for the meeting of your honorable body, and that day must necessarily find the revenue fund without a dollar to meet the expenses of the session.

It therefore seems to me, that you should at once devise some means for the relief of this fund. Besides the refundment of the overdraft at least $75,000 will be required for the expenses of the regular session and an equal amount for current expenses until March next, when the fund will receive the March settlement collections from the county treasurers, which in all probability will be sufficient to keep the fund even from that period forward.

Although I do not desire to make any definite recommendations in regard to the measures to be adopted for the relief of the revenve fund, I would merely suggest the issue of bonds as preferable to the extension of the limit to which the fund may be overdrawn I do not consider it good financial policy to allow one fund to overdraw at the expense of the others. An issue of bonds to the amount of about $300,000, bearing 4½ per cent. interest, and redeemable at any time within five years, would supply all the money required, and nearly all could be taken by the trust funds about as fast as the money would be called for. This would give the trust funds the interest to which they are justly entitled, but of which they are deprived under the overdrawing system.

The State institutions fund which has heretofore been able to nearly always replace the sums overdrawn by the revenue fund, has now only $20,246.91 on hand and all of this will be required for the support of the State institutions before January 1, 1883. The changed condition of this fund is due to the extra expenditures of over $125,000 for building and $88,086.45 for the first six months' interest on the railroad adjustment bonds.

The receipts into this fund last year were $473,938.52. The receipts for the coming year will probably be about the same or a trifle more, and out of this must be paid $191,385 for interest on 4,253 railroad adjustment bonds and $320,000 for support of State institutions, if the appropriations should be the same as last year.

Besides this, there are balances amounting to about $41,000 due the different iustitutions, upon appropriations for buildings and improvements, for which warrants have not yet been presented.

CONCLUSION.

In conclusion, it gives me pleasure to state, that all who transact business with this office are becoming more prompt in their remittances. More particularly so the treasurers of counties and railroad companies, who generally remit within from one to five days after being notified of the amounts due by their respective counties or companies. Exceptions hereto are, however, made by some of the frontier counties for amounts due for school text books.

Very respectfully,

CHARLES KIETELSON,

State Treasurer.

FINANCIAL STATEMENTS.

STATEMENT OF RECEIPTS FROM COUNTIES AND ALL OTHER SOURCES.

COUNTIES.	evenue.	State Institutions.	Interest.	Sinking Fund Seed Grain, 1878.	Sinking Fund.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement.	Internal Improvement land fund and interest	Attorney 12th Dist.	Forestry Fund.	Swamp Land Fund.	School Text Books.	Total.
Aitkin	185 69	4 43	7 99	34 75	....	....	....	....	1 40	....	....	....	15 98	....	....	250 24
Anoka	2,374 76	31 33	80 80	632 58	....	750 11	1,358 92	....	12 12	....	....	....	161 62	....	....	5,402 24
Becker	1,349 43	49 30	47 33	231 54	49 36	....	1,414 62	....	16 59	....	....	....	94 64	....	....	3,252 81
Benton	2,791 19	51 02	35 38	2,000 79	....	4,272 75	1,448 59	....	21 13	....	....	....	70 79	....	....	10,691 64
Big Stone	602 72	4 06	27 09	125 97	....	230 79	589 62	....	1 35	....	....	....	54 18	....	....	1,635 78
Blue Earth	8,187 81	46	371 41	1,485 91	135 50	2,281 00	4,219 18	165 00	628 59	....	....	....	742 82	....	....	18,217 74
Brown	3,212 51	35 55	112 12	666 06	380 60	802 00	2,523 95	....	182 60	....	....	....	284 25	....	....	8,229 64
Beltrami	101 07	2 12	4 43	18 94	....	....	....	....	66	....	....	....	8 87	....	....	136 09
Cass	648 78	7 40	29 10	129 77	....	170 00	115 05	....	2 78	....	....	....	58 21	....	....	1,161 07
Carlton	518 74	12 61	16 97	195 19	....	....	....	....	4 89	....	....	....	33 94	....	....	782 34
Carver	3,477 34	48 91	152 90	653 69	....	2,209 00	1,776 27	....	16 20	....	....	....	305 81	....	....	8,640 12
Chippewa	1,222 57	16 54	55 04	231 96	1,489 06	59 00	1,506 55	....	5 33	....	231 82	....	110 09	....	....	4,918 94
Chisago	2,046 08	21 84	84 12	424 02	....	1,319 00	1,969 99	....	7 41	....	....	....	168 24	....	....	6,040 71
Clay	2,401 49	145 04	109 12	701 70	4 45	8,071 82	4,796 91	1,392 00	1,136 3	....	12,420 09	....	144 25	....	....	31,316 67
Cottonwood	1,211 92	9 85	56 23	232 31	....	258 00	1,333 17	....	3 11	....	....	....	112 48	....	....	3,217 07
Crow Wing	287 78	5 59	16 00	181 66	....	726 80	250 39	....	1 87	....	....	....	33 63	....	....	1,503 52
Cook	16 69	25	71	3 12	....	....	....	....	08	....	....	....	1 49	....	....	22 34
Dakota	8,195 27	44 01	287 10	2,893 88	....	10,618 26	2,848 46	....	19 53	....	....	....	574 22	....	....	25,483 76
Dodge	4,387 64	37 47	241 46	856 56	....	5,566 75	2,291 93	875 00	111 93	....	....	....	402 91	....	....	15,134 65
Douglas	2,764 58	54 98	115 15	499 58	694 55	5,584 01	4,128 12	....	18 16	....	7,552 28	....	230 32	....	....	21,641 73
Faribault	4,809 65	59 12	200 26	1,059 16	20 00	5,455 50	5,361 10	297 65	1,582 84	....	....	....	403 51	....	....	19,248 79
Fillmore	9,613 74	38 30	411 26	2,153 54	....	12,471 00	4,669 87	....	12 39	....	....	....	822 51	....	....	30,195 61
Freeborn	5,631 63	11 95	257 60	1,182 07	....	2,969 00	5,136 13	1,500 00	2,309 97	....	....	....	515 21	....	....	19,483 56
Goodhue	13,085 51	35 18	559 25	2,699 99	....	10,065 50	2,571 04	....	15 21	....	....	....	1,118 47	....	....	30,160 10

Grant	1,006 86	31 07	41 49	188 39	272 74	758 00	1,189 38	......	10 80	......	1,364 47	......	83 00	......	......	4,940 97
Hennepin	47,077 84	108 87	2,010 02	8,111 75	......	4,614 40	2,631 68	......	45 94	......	......	......	4,020 03	......	......	68,620 58
Houston	4,811 64	14 43	216 07	1,095 80	......	5,970 15	1,903 58	......	6 55	......	......	......	432 16	......	......	14,450 82
Isanti	949 98	16 4	41 43	184 46	......	404 00	560 06	......	5 60	......	......	......	82 86	......	......	2,250 87
Itaska	220 78	1 56	10 11	43 02	......	......	......	......	58	......	......	......	80 19	......	......	296 24
Jackson	1,285 79	6 97	59 23	254 16	176 00	5,111 00	1,679 77	......	2 68	......	4,512 79	......	118 47	......	......	13,216 77
Kanabec	609 96	8 28	26 51	148 84	......	......	......	......	1 33	......	......	......	58 08	......	......	842 95
Kandiyohi	3,298 28	29 73	150 35	624 22	7,692 79	1,109 74	4,189 21	......	10 02	......	......	......	800 71	......	......	17,409 05
Kittson	251 87	1 81	11 63	17 64	......	10,878 00	1,570 14	......	58	......	......	......	28 27	......	......	12,284 94
Lac Qui Parle	1,266 48	8 79	59 00	240 34	216 49	......	......	......	2 63	......	......	......	117 99	......	......	1,911 68
Lake	146 98	3 73	5 62	39 84	......	......	......	......	1 17	......	......	......	11 28	......	......	208 57
Le Sueur	3,861 68	35 56	162 80	691 63	......	6,755 30	4,193 85	......	11 81	......	......	......	325 60	......	......	16,038 20
Lincoln	385 47	5 87	17 10	72 28	......	......	......	......	1 89	......	......	......	34 21	......	......	516 77
Lyon	1,189 85	42 43	47 38	226 67	300 35	519 00	1,465 32	......	14 34	......	......	......	94 77	......	......	3,900 11
McLeod	3,470 39	69 12	135 03	643 13	98 00	5,103 50	5,116 31	3,264 50	3,560 36	......	575 11	......	270 05	......	......	22,102 50
Marshall	804 52	17 17	11 04	54 74	......	9,688 00	3,347 40	......	5 55	......	......	......	22 08	......	......	13,450 56
Martin	1,614 81	......	76 88	307 48	......	450 56	1,246 08	......	......	......	1,215 48	......	153 74	......	......	5, 94 58
Meeker	3,293 45	15 50	153 55	24 17	631 29	1,761 54	4,848 49	923 70	1,841 65	......	......	......	377 15	......	......	14,403 49
Mille Lacs	1,244 75	69 59	41 15	658 40	......	......	......	......	30 66	......	......	......	44 98	......	......	2,169 51
Morrison	2,174 19	137 93	60 39	722 30	......	1,036 82	1,148 12	......	42 75	......	936 11	......	120 77	......	......	6,669 38
Mower	8,084 52	438 18	301 28	1,464 59	......	10,496 00	6,699 04	2,341 00	542 55	......	......	......	602 57	......	......	30,972 73
Murray	880 44	17 70	38 53	165 66	176 57	......	......	......	5 85	......	......	......	77 06	......	......	1,370 80
Nicollet	4,208 14	36 50	177 25	781 13	181 11	1,985 76	2,500 84	340 00	704 73	......	......	......	354 50	......	......	11,249 96
Nobles	1,299 88	4 78	60 80	248 78	1,388 01	......	1,286 76	......	1 65	......	......	......	121 60	......	......	4,412 26
Norman	......	......	......	......	......	2,010 00	2,466 76	608 00	983 30	......	1,848 14	......	......	......	......	7,915 20
Olmsted	9,649 42	16 04	441 44	1,952 31	......	15,330 00	3,784 03	......	5 13	......	......	......	882 95	......	......	32,061 32
Otter Tail	4,644 95	102 62	199 54	865 77	173 39	8,066 96	6,002 35	......	83 61	......	16,083 80	......	899 09	......	......	36,572 08
Pine	1,677 86	50 45	20 72	1,176 68	......	680 00	94 81	......	26 66	......	......	......	41 44	......	......	3,768 62
Polk	2,740 48	36 36	122 81	516 46	......	5,395 90	9,215 91	......	199 00	......	594 81	......	245 62	......	......	19,067 35
Pope	1,626 80	33 48	70 31	304 82	773 31	1,224 50	2,751 59	......	153 06	......	5,719 70	......	140 62	......	......	12,798 49
Pipestone	280 79	4 02	12 47	52 59	......	......	......	......	1 34	......	......	......	24 96	......	......	376 17
Ramsey	46,147 26	217 55	1,585 32	7,605 38	......	3,205 00	966 06	......	74 11	......	......	......	3,170 69	......	......	62,971 27
Redwood	1,859 60	13 19	85 58	356 70	37 42	476 00	1,443 30	......	4 39	......	1,485 14	......	171 16	......	......	5,932 48
Renville	1,720 01	41 07	72 80	352 47	2,262 07	403 27	2,574 46	......	309 81	......	5,465 13	......	145 61	......	......	18,358 0
Rice	8,750 79	97 30	367 89	1,548 40	......	6,568 68	3,149 12	......	38 50	......	......	......	735 78	......	......	21,250 46
Rock	1,153 27	3 54	54 19	219 80	11 13	......	1,553 21	......	1 16	......	......	......	108 40	......	......	3,104 76
St. Louis	2,456 79	16 25	86 21	935 38	......	......	64 79	......	5 19	......	......	......	172 40	......	......	3,737 01
Scott	3,437 37	1 47	163 36	654 40	......	3,969 67	1,699 96	......	48	......	......	......	526 72	......	......	10,253 43
Sherburne	851 54	16 46	36 72	166 90	......	239 00	1,034 20	......	20 32	......	......	......	73 43	......	......	2,438 57
Sibley	3,581 54	25 49	154 74	851 54	88 40	3,054 85	4,183 46	......	1,893 03	......	2,370 63	......	309 50	......	......	16,513 18
Stearns	6,558 04	79 97	295 58	1,234 80	94 92	4,329 50	6,035 60	272 00	691 21	......	65 19	......	591 17	......	......	20,247 98
Steele	4,718 63	8 42	203 05	842 23	......	6,238 00	2,970 33	510 00	915 64	......	......	......	406 11	......	......	16,792 41
Ste[illegible]ns	1,348 77	10 65	61 62	261 78	308 22	......	1,557 10	......	8 93	......	897 93	......	123 29	......	......	4,572 35
Sw[illegible]t	1,762 53	45 46	73 99	326 18	447 41	4,216 00	1,647 47	......	15 04	......	......	......	147 97	......	......	6,692 05
Todd	1,293 12	29 12	55 18	248 63	28 35	204 00	1,659 78	......	9 61	......	718 51	......	110 3	......	......	4, 56 64
Traverse	301 25	3 49	13 56	56 59	......	......	......	......	1 16	......	......	......	27 15	......	......	408 20
Wabasha	6,381 81	24 10	268 23	1,163 35	......	2,204 00	1,189 82	......	9 22	......	......	......	536 44	......	......	11,776 97
Wadena	468 27	9 42	20 09	93 51	......	78 00	814 48	......	2 08	......	......	......	40 19	......	......	1,525 04
Waseca	3,855 43	29 68	175 52	776 20	......	3,826 00	1,990 71	......	332 40	......	......	......	351 06	......	......	11,827 00
Washington	7,426 14	115 53	209 30	1,684 01	......	4,476 00	2,296 11	......	42 90	......	......	......	598 61	......	......	16,938 60
Watonwan	1,149 68	6 59	53 24	220 94	......	......	708 11	......	464 82	......	14 21	......	106 47	......	......	2,724 06
Wilkin	1,055 01	10 94	46 20	220 56	......	1,496 00	2,514 38	......	27 64	......	1,120 32	......	92 42	......	......	6,592 37

STATEMENT OF RECEIPTS FROM COUNTIES AND ALL OTHER SOURCES.—*Continued.*

COUNTIES.	Revenue.	State Institutions.	Interest.	Sinking Fund Seed Grain, 1878.	Sinking Fund.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement.	Internal Improvement land fund and interest.	Attorney 12th Dist.	Forrestry Fund.	Swamp Land Fund.	Schoo Text Books.	Total.
Winona..........	11,288 54	389 60	486 16	2,025 95		7,050 00	3,174 91		129 87				872 34			25,367 37
Wright..........	4,566 86	78 67	176 43	849 47		6,433 40	3,380 47		1,643 78				352 86			17,481 94
Yellow Medicine.	1,382 57	20 68	61 92	259 87	276 44				6 56		15 95		128 86			2,147 85
Total f'm counties Statement "A"	816,815 75	8,881 87	12,898 74	64,531 52	18,405 93	231,5[illegible]1 86	167,157 46	12,491 85	21,508 78		65,090 91		25,686 10			938,985 77
Total from railroad companies Statement "B."		470,556 65				20 00					16 68					470,593 33
Total f'm stumpage, Statement "C"...........	306 32					54,216 99	1,117 25	29,632 59	1,715 92		498 25			2,013 68		89,501 00
Total from miscellaneous sources Statement "D."	86,022 35					535,138 34	82,451 42	168,676 50	11,472 50	17,938 39	228,624 50	2,201 03				1,182,525 03
Total f'm counties for school text books. Statement "E.".....															12,066 39	12,066 39
	402,644 42	473,938 52	12,898 74	64,531 52	18,405 93	820,957 19	250,726 13	210,800 94	34,692 90	17,938 39	294,170 34	2,201 03	25,686 10	2,013 68	12,066 39	[illegible],648,671 52

STATEMENT "A."

Showing in detail the Receipts into the State Treasury from December 1, 1881, to the close of the Fiscal Year, November 30, 1882, from County Treasurers on State Auditor's Drafts.

AITKIN COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
March 25........	3559	36 12	1 68	1 42	6 76	....	....	....	....	52	....	2 83	49 33	
July 15........	3721	137 74	1 80	6 22	25 91	....	....	....	....	56	....	12 45	184 71	
November 2....	3984	11 83	95	35	2 05	....	....	....	....	32	....	70	16 20	
		185 69	4 43	7 99	34 75	....	....	....	....	1 40	....	15 98	250 24	250 24

ANOKA COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
February 16.....	3400	261 13	....	....	....	....	....	....	....	....	....	....	261 13	
March 24.......	3462	900 83	21 13	26 87	372 78	....	....	....	....	8 62	....	53 74	1,383 97	
April 10........	3501	....	....	....	....	....	275 00	172 23	....	....	....	....	447 23	
July 5..........	3634	....	....	....	....	....	275 86	1,128 10	....	....	....	....	1,403 96	
July 5..........	3661	1,077 69	7 32	49 39	211 72	....	....	....	....	2 50	....	98 79	1,447 41	
August 25......	3769	....	....	....	....	....	29 25	6 54	....	....	....	....	35 79	
October 23......	3826	....	....	....	....	....	170 00	52 05	....	....	....	....	222 05	
October 23......	3857	135 11	2 88	4 54	48 08	....	....	....	....	1 00	....	9 09	200 70	
		2,374 76	31 33	80 80	632 58	....	750 11	1,358 92	....	12 12	....	161 62	5,402 24	5,402 24

Statement "A."—Continued.

BECKER COUNTY.

Date of payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
April 27	3402	140 40											140 40	
March 28	3556	444 44	27 61	15 21	80 58	40 36				9 18		30 41	647 79	
August 1	3728	657 55	13 57	28 64	126 64	9 00				4 42		57 28	897 10	
August 1	3755							1,420 39					1,420 39	
October 30	3913							24 23					24 23	
October 30	3897	107 04	8 12	3 48	24 32					2 99		6 95	152 90	
		1,349 43	49 30	47 33	231 54	49 36		1,444 62		16 59		94 64	3,282 81	3,282 81

BENTON COUNTY.

Date of payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
March 17	3463	2,177 26	41 59	8 18	1,884 81					17 95		16 37	4,146 16	
March 28	3502							55 41					55 41	
June 17	3602	516 05	7 06	23 07	97 86					2 39		46 15	692 58	
June 17	3599						4,272 75	271 39					4,544 14	
October 30	3837							1,121 79					1,121 79	
October 30	3858	97 88	2 37	4 13	18 12					79		8 27	131 56	
		2,791 19	51 02	35 38	2,000 79		4,272 75	1,448 59		21 13		70 79	10,691 64	10,691 64

Statement "A."—Continued.

BIG STONE COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
March 23	3538	177 06	4 06	7 53	32 82					1 35		15 06	237 88	
July 24	3710	283 51		12 79	66 07							25 58	387 95	
July 24	3668							530 67					530 67	
October 23	3828						82 39						82 39	
October 23	3859	142 15		6 77	27 08							13 54	189 54	
October 26	3813						118 40	58 95					207 35	
		602 72	4 06	27 09	125 97		230 79	589 62		1 35		54 18	1,635 78	1,635 78

BLUE EARTH COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
March 13	3401	386 10											386 10	
March 22	3500						850 00	516 13		109 12			1,475 25	
April 3	3534	1,780 39	46	84 68	339 02	33 00				16		169 35	2,407 06	
April 19	3572						510 00	21 13					531 13	
July 20	3765	5,099 49		242 83	971 83	102 50						485 67	6.901 82	
July 20	3690						921 00	2,912 40	165 00	519 31			4,517 71	
November 16	3880							769 52					769 52	
November 16	3946	921 86		43 90	175 59							87 80	1,229 15	
		8,187 84	46	371 41	1,486 94	135 50	2,281 00	4,219 18	165 00	628 59		742 82	18,217 74	18,217 74

Statement "A."—Continued.

BROWN COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Perma-University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
March 30.......	3532	1,042 51	24 73	41 17	261 41	111 24	....	....	....	8 46	....	82 34	1,561 86	
March 30.......	3547	....	....	....	....	....	....	75 47	....	....	....	....	75 47	
July 13.........	3670	....	....	....	....	....	802 00	2,448 48	....	170 51	....	....	3,420 99	
July 18.........	3704	1,974 76	7 15	92 39	377 70	119 39	....	....	....	2 41	....	184 79	2,758 69	
October 25......	3860	195 24	3 67	8 56	36 95	149 97	....	....	....	1 22	....	17 12	412 73	
		3,212 51	35 55	142 12	666 06	380 60	802 00	2,523 95	....	182 60	....	284 25	8,229 64	8,229 64

BELTRAMI COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Perma-University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
August 1........	3724	98 16	....	4 43	17 75	....	....	....	....	....	....	8 87	124 21	
October 30......	3898	7 91	2 12	....	1 19	....	....	....	....	66	....	....	11 88	
		101 07	2 12	4 43	18 94	....	....	....	....	66	....	8 87	136 09	136 09

Statement "A."—Continued.

CASS COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions.	Interest.	Sinking.	Seed grain Sinking. 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal Improve. m't Land Fund and Interest.	Forestry.	Total.	Grand Total.
March 8........	3460	43 16	58	1 84	9 92	....	....	....	....	25	....	3 67	59 42	
June 14.........	3589	591 74	5 79	26 83	117 41	....	....	....	....	2 19	....	53 67	797 63	
June 14.........	3595	....	....	....	....	....	170 00	115 05	....	....	....	....	285 05	
October 30......	3893	13 88	1 03	43	2 42	....	....	....	....	34	....	87	18 97	
		648 78	7 40	29 10	129 75	....	170 00	115 05	....	2 78	....	58 21	1,161 07	1,161 07

CARLTON COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions.	Interest.	Sinking.	Seed grain Sinking. 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal Improve. m't Land Fund and Interest.	Forestry.	Total.	Grand Total.
March 30.......	3565	288 94	10 57	6 48	151 87	....	....	....	....	4 21	....	12 96	475 03	
June 24.........	3617	209 91	1 17	9 74	39 73	....	....	....	....	39	....	19 47	280 41	
October 24......	3861	19 89	87	75	3 59	....	....	....	....	29	....	1 51	26 90	
		518 74	12 61	16 97	195 19	....	....	....	....		....	33 94	782 34	782 34

Statement "A."—Continued.

CARVER COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
March 17	3464	1,579 81	30 12	68 58	300 75	....	....	....	....	10 13	....	137 16	2,126 55	
March 25	3503	....	....	....	....	....	865 00	....	....	....	....	....	865 00	
May 2	3404	44 36	....	....	....	....	....	....	....	....	....	....	44 36	
June 24	3624	1,719 68	13 40	79 05	328 53	....	....	....	....	4 31	....	158 10	2,303 07	
June 24	3619	....	....	....	....	....	1,068 00	1,776 27	....	....	....	....	2,844 27	
October 23	3829	....	....	....	....	....	276 00	....	....	....	....	....	276 00	
October 23	3862	133 49	5 39	5 27	24 41	....	....	....	....	1 76	....	10 55	180 87	
		3,477 34	48 91	152 90	653 69	....	2,209 00	1,776 27	....	16 20	....	305 81	8,640 12	8,640 12

CHIPPEWA COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
March 28	3548	425 17	12 62	17 87	80 68	160 95	....	....	....	4 03	....	35 75	737 07	
July 5	3648	605 22	1 81	28 41	115 01	444 92	....	....	....	63	....	56 82	1,252 82	
July 5	3635	....	....	....	....	....	....	1,462 33	....	....	231 82	....	1,694 15	
Octoeer 30	3880	....	....	....	....	....	50 00	44 20	....	....	....	....	94 20	
October 30	3896	192 18	2 11	8 76	36 27	883 19	....	....	....	67	....	17 52	1,140 70	
		1,222 57	16 54	55 04	231 96	1,489 06	50 00	1,506 53	....	5 33	231 82	110 09	4,918 94	4,918 94

Statement "A."—Continued.

CHISAGO COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
March 25.	3403	119 96	......	......	......	......	......	......	......	......	......	......	119 96	
March 25.	3465	829 56	9 03	37 60	158 92	......	......	......	......	2 95	......	75 22	1,113 28	
April 17	3504	......	......	......	......	......	40 00	......	......	......	......	......	40 00	
June 27.	3620	......	......	......	......	......	1,179 00	1,921 78	......	......	......	......	3,100 78	
June 27.	3628	876 30	4 32	40 72	169 28	......	......	......	......	1 46	......	81 43	1,173 51	
November 3.	3920	220 26	8 49	5 80	95 83	......	......	......	......	3 00	......	11 59	344 97	
November 3.	3831	......	......	......	......	......	100 00	48 21	......	......	......	......	148 21	
		2,046 08	21 84	84 12	424 03	......	1,319 00	1,969 99	......	7 41	......	168 24	6,040 71	6,040 71

CLAY COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
January 16.	3184	659 40	103 59	37 80	336 31	4 45	......	......	......	37 94	......	......	1,178 99	
January 16.	3200	......	......	......	......	......	......	......	......	......	433 91	......	433 91	
January 16.	3201	......	......	......	......	......	1,088 00	45 29	......	......	1,078 91	......	2,212 20	
January 16.	3334	......	......	......	......	......	......	......	......	......	391 00	......	391 00	
January 16.	3364	......	......	......	......	......	500 00	176 95	......	......	......	......	676 95	
April 8.	3505	......	......	......	......	......	1,030 50	238 86	......	......	697 03	......	1,966 39	
May 8.	3581	666 39	23 98	23 53	158 20	......	......	......	......	11 97	......	47 05	936 12	
September 5.	3797	1,075 70	12 47	48 59	206 99	......	......	......	......	3 97	......	97 20	1,444 92	
September 5	3791	......	......	......	......	......	2,471 58	3,134 82	1,392 00	1,082 75	8,703 64	......	16,784 79	
September 5.	3806	......	......	......	......	......	2,974 81	1,200 99	......	......	1,115 60	......	5,291 40	
		2,401 49	145 04	109 42	701 50	4 45	8,064 89	4,796 91	1,392 00	1,136 63	12,420 09	144 25	31,316 67	31,316 67

Statement "A."—Continued.

COTTONWOOD COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement. land fund and interest.	Forestry.	Total.	Grand Total.
March 17.......	3467	346 83	9 81	15 09	66 84	....	....	....	....	3 03	....	30 18	471 78	
April 6..........	3506	....	....	....	....	....	....	76 60	....	....	....	....	76 60	
July 8..........	3614	717 24	04	34 10	137 31	....	....	....	....	08	....	68 22	956 99	
July 8...,......	3676	....	....	....	....	....	258 00	1,057 68	....	....	....	....	1,315 68	
October 24......	[illegible]	147 85	....	7 04	28 16	....	....	....	....	....	....	14 08	197 13	
October 28......	3881	....	....	....	....	....	....	198 89	....	....	....	....	198 89	
		1,211 92	9 85	56 23	232 31	....	258 00	1,333 17	....	3 11	....	112 48	3,217 07	3,217 07

CROW WING COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement. land fund and interest.	Forestry.	Total.	Grand Total.
March 8........	3458	139 63	76	6 45	27 00	....	....	....	....	28	....	12 92	187 04	
March 8........	3459	....	....	....	....	....	100 00	....	....	....	....	....	100 00	
June 14.........	3588	218 85	4 48	9 04	48 15	....	....	....	....	1 47	....	18 08	300 07	
June 14.........	3594	....	....	....	....	....	526 80	203 52	....	....	....	....	730 32	
October 30......	3914	....	....	....	....	....	100 00	46 87	....	....	....	....	146 87	
October 30......	3891	29 30	35	1 31	5 51	....	....	....	....	12	....	2 63	39 22	
		387 78	5 59	16 80	80 66	....	726 80	250 39	....	1 87	....	33 63	1,503 52	1,503 52

Statement "A."—Continued.

COOK COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
April 10.........	3493	2 90	....	14	55	....	....	....	....	....	....	28	3 87	
June 24.........	3607	10 77	23	46	2 00	....	....	....	....	08	....	92	14 46	
November 18....	3895	3 01	....	14	57	....	....	....	....	....	....	29	4 01	
		16 68	23	74	3 12	....	....	....	....	08	....	1 49	23 34	22 34

DAKOTA COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
January 21......	3365	....	....	....	....	....	152 51	34 71	....	....	....	....	187 22	
May 2..........	3578	....	....	....	....	....	2,074 00	198 57	....	....	....	....	2,272 57	
May 2..........	3580	3,622 42	37 80	84 07	2,075 57	....	....	....	....	17 60	....	168 15	6,005 61	
July 24..........	3715	4,292 05	6 24	203 03	821 31	....	....	....	....	1 93	....	406 07	5,730 63	
July 24..........	3725	....	....	....	....	....	8,391 75	2,615 18	....	....	....	....	11,006 93	
July 26..........	3407	280 80	....	....	....	....	....	....	....	....	....	....	280 80	
		8,195 27	44 04	287 10	2,896 88	....	10,618 26	2,848 46	....	19 53	....	574 22	25,483 76	25,483 76

Statement "A."—Continued.

DODGE COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
March 30........	3514	....	....	....	....	....	850 00	8 78	255 00	....	....	....	1,113 78	
March 30........	3537	1,226 57	15 95	55 55	236 18	....	....	....	....	5 12	....	111 12	1,650 49	
July 21........	3694	2,625 28	13 80	121 54	519 12	....	....	....	....	5 39	....	243 06	3,528 19	
July 21........	3669	....	....	....	....	....	5,116 75	2,208 38	620 00	99 12	....	....	8,044 25	
October 25......	3832	....	....	....	....	....	....	77 77	....	....	....	....	77 77	
October 25......	3864	535 79	7 72	24 37	101 26	....	....	....	....	2 30	....	48 73	720 17	
		4,387 64	37 47	201 46	856 56	....	5,966 75	2,294 93	875 00	111 93	....	402 91	15,134 65	15,134 65

DOUGLAS COUNTY.

February 13.....	3398	....	....	....	....	....	84 15	20 13	....	....	....	....	104 28	
March 18.......	3466	843 50	33 89	32 95	156 61	464 50	....	....	....	10 99	....	65 90	1,607 34	
March 27.......	3507	....	....	....	....	....	439 40	111 94	....	....	568 48	....	1,109 82	
March 27.......	3406	100 29	....	....	....	....	....	....	....	....	....	....	100 29	
July 8..........	3666	....	....	....	....	....	3,520 40	3,458 28	....	....	5,818 72	....	12,797 40	
July 8..........	3627	1,381 90	7 89	64 11	261 76	207 50	....	....	....	2 61	....	128 23	2,064 00	
August 10.......	3772	....	....	....	....	....	1,482 06	429 53	....	....	1,127 06	....	3,038 65	
October 25......	3833	....	....	....	....	....	58 00	108 21	....	....	48 02	....	214 26	
October 25......	3865	438 89	14 20	18 09	81 21	22 55	....	....	....	4 56	....	36 19	615 69	
		2,764 58	54 98	115 15	499 58	694 55	5,584 01	4,128 12	....	18 16	7,552 28	230 32	21,641 73	21,641 73

Statement "A."—Continued.

FARIBAULT COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sink'ng.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal Improvement land fund and interest.	Forestry.	Total.	Grand Total.
March 15	3880	....	....	....	....	....	665 00	151 15	93 65	21 14	....	....	930 94	
March 22	3487	1,239 67	29 11	42 65	406 52	20 00	....	....	....	9 62	....	85 30	1,832 87	
March 30	3508	....	....	....	....	....	230 00	674 58	204 00	483 58	....	....	1,592 16	
April 27	3408	140 40	....	....	....	....	....	....	....	....	....	....	140 40	
July 15	3691	....	....	....	....	....	4,460 50	3,013 85	....	906 86	....	....	8,381 21	
July 15	3699	2,549 31	20 89	117 57	485 03	....	....	....	....	6 58	....	235 14	3,414 52	
October 30	3890	880 27	9 12	40 04	167 61	....	....	....	....	2 92	....	80 07	1,180 03	
October 30	3915	....	....	....	....	....	100 00	1,524 52	....	152 14	....	....	1,776 66	
		4,809 65	59 12	200 26	1,059 16	20 00	5,455 50	5,364 10	297 65	1,582 84	....	400 51	19,248 79	19,248 79

FILLMORE COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sink'ng.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal Improvement land fund and interest.	Forestry.	Total.	Grand Total.
January 23	3332	....	....	....	....	....	340 00	....	....	....	....	....	340 00	
February 8	3409	330 17	....	....	....	....	....	....	....	....	....	....	330 17	
April 6	3529	4,064 27	25 27	164 74	1,159 52	....	....	....	....	8 25	....	329 47	5,741 52	
April 6	3528	....	....	....	....	....	900 00	74 18	....	....	....	....	974 18	
August 19	3712	4,731 50	6 37	224 04	900 06	....	....	....	....	2 05	....	448 08	6,312 09	
August 19	3771	....	....	....	....	....	10,214 00	4,595 69	....	....	....	....	14,809 69	
October 24	3834	....	....	....	....	....	1,020 00	....	....	....	....	....	1,020 00	
October 24	3866	497 80	6 66	22 48	93 97	....	....	....	....	2 09	....	44 96	667 96	
		9,613 74	38 30	411 26	2,158 54	....	12,474 00	4,669 87	....	12 39	....	822 51	30,195 61	30,195 61

Statement "A."—Continued.

FREEBORN COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
February 7	3410	140 40											140 40	
March 28	3549						1,322 00	459 45		282 21			2,063 66	
March 28	3530	1,200 65	9 68	55 78	227 78					2 87		111 56	1,608 32	
August 14	3665	3,530 52	48	166 32	701 59					15		332 64	4,731 70	
August 14	3650						1,332 50	4,166 95	1,500 00	1,729 45			8,728 90	
November 2	3882						314 50	529 73		293 95			1,138 18	
November 2	3928	760 06	1 79	35 50	152 70					1 34		71 01	1,022 40	
		5,631 63	11 95	257 60	1,082 07		2,969 00	5,156 13	1,500 00	2,309 97		515 21	19,433 56	19,433 56

GOODHUE COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
March 21	3490	4,123 70	21 84	178 28	1,030 25					10 27		356 57	5,720 91	
March 24	3509						880 00	105 05					985 05	
July 19	3600						8,488 50	2,415 96					10,904 46	
July 19	3706	7,369 73	9 49	342 77	1,515 00					3 79		685 52	9,926 30	
October 9	3411	777 60											777 60	
October 26	3814		3 80	38 20	154 74					1 15		76 38	1,088 75	
October 26	3826						697 00	50 03					747 03	
		13,085 51	35 13	559 25	2,699 99		10,065 50	2,571 04		15 21		1,118 47	30,150 10	30,150 10

Statement "A"—Continued.

GRANT COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
March 28	3497	270 31	16 86	9 18	50 61	260 87				5 74		18 36	631 93	
July 27	3717	584 86	8 31	26 16	109 82	11 87				2 70		52 34	796 06	
July 27	8743						753 00	1,189 38			1,364 77		3,307 15	
November 18	3929	151 66	5 90	6 15	27 96					1 86		12 30	205 83	
		1,006 83	31 07	41 49	188 39	272 74	753 00	1,189 38		10 30	1,364 77	83 00	4,940 97	4,940 97

HENNEPIN COUNTY.

February 18	3413	4,390 98											4,390 98	
April 17	3573	11,736 57		558 74	2,238 00					1 82		1,117 47	15,652 60	
April 22	3575						1,263 60	88 76					1,352 36	
July 10	3677						2,991 80	1,780 72					4,772 52	
July 10	3679	27,122 69	8 91	1,290 69	5,165 36					1 30		2,581 38	36,165 33	
October 26	3879	3,827 60	104 96	160 59	708 39					42 82		321 18	5,165 54	
October 26	3836						359 00	762 20					1,121 20	
		47,077 84	108 87	2,010 03	8,111 75		4,614 40	2,631 68		45 94		4,020 03	68,620 53	68,620 53

Statement "A."—Continued.

HOUSTON COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain Sinking. 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
April 6	3485	2,804 66	13 97	96 83	617 04	....	....	....	....	6 37	....	193 68	3,232 55	
April 6	3510	....	....	....	....	....	510 00	108 85	....	....	....	....	618 85	
July 17	3645	2,278 72	45	108 87	435 29	....	....	....	....	18	....	216 74	3,039 75	
July 17	3671	....	....	....	....	....	5,424 00	1,794 68	....	....	....	....	7,218 68	
October 23	3837	....	....	....	....	....	36 15	....	....	....	....	....	36 15	
October 23	3820	228 26	....	10 87	43 47	....	....	....	....	....	....	21 74	304 31	
		4,811 64	14 42	216 07	1,095 80	....	5,970 15	1,903 53	....	6 55	....	432 16	14,450 32	14,450 32

ISANTI COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain Sinking. 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
March 18	3468	362 21	9 96	15 04	68 27	....	....	....	....	3 34	....	30 09	488 91	
June 20	3609	518 98	5 17	23 41	103 40	....	....	....	....	1 81	....	46 82	699 59	
June 20	3598	....	....	....	....	....	404 00	542 38	....	....	....	....	946 38	
October 25	3838	....	....	....	....	....	....	23 68	....	....	....	....	23 68	
October 25	3867	68 79	1 35	2 98	12 79	....	....	....	....	45	....	5 95	92 31	
		948 98	16 48	41 43	184 46	....	404 00	566 06	....	5 60	....	82 86	2,250 87	2,250 87

Statement "A."—Continued.

ITASKA COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal Improvement land fund and interest.	Forestry.	Total.	Grand Total.
March 8........	3461	9 84	91	27	1 68	....	....	....	....	30	....	52	13 52	
June 14........	3590	201 79	65	9 41	39 59	....	....	....	....	28	....	18 80	270 52	
October 30......	3892	9 15	....	43	1 75	....	....	....	....	....	....	87	12 20	
		220 78	1 56	10 11	43 02	....	....	....	....	58	....	20 19	296 24	296 24

JACKSON COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal Improvement land fund and interest.	Forestry.	Total.	Grand Total.
March 30.......	3571	316 75	4 55	13 58	70 07	29 00	....	....	....	1 79	....	27 17	462 91	
August 15......	3702	805 39	1 30	38 11	153 17	3 00	....	....	....	41	....	76 21	1,077 59	
August 15......	3697	....	....	....	....	....	400 00	1,074 52	....	....	1,008 00	....	2,482 52	
August 15......	3790	....	....	....	....	....	1,855 00	605 25	....	....	3,504 79	....	5,965 04	
October 30.....	3822	....	....	....	....	....	2,720 00	....	....	....	....	....	2,720 00	
October 30.....	3825	....	....	....	....	....	136 00	....	....	....	....	....	136 00	
November 29...	3960	163 65	1 13	7 54	30 92	1 44	....	....	....	38	....	15 09	362 71	
		1,285 79	6 98	59 23	254 16	1 76	5,111 00	1,679 77	....	2 58	4,512 79	118 47	13,206 77	13,206 77

Statement " A "—Continued.

KANABEC COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain Sinking, 1878.	Permanent School.	General School.	Permanent University	General University	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
April 17....	3568	79 47	2 41	1 73	42 98	....	....	....	....	1 02	....	3 47	131 08	
July 12.....	3653	509 82	26	23 93	102 06	....	....	....	....	11	....	47 87	684 05	
October 25.	3868	20 67	61	85	3 80	....	....	....	....	20	....	1 69	27 82	
		609 96	3 28	26 51	148 84	....	....	....	....	1 33	....	53 03	842 95	842 95

KANDIYOHI COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain Sinking, 1878.	Permanent School.	General School.	Permanent University	General University	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
March 22.......	3496	1,074 35	20 48	46 37	206 39	3,474 62	....	....	....	7 01	....	92 75	4,921 97	
March 24	3511	....	....	....	....	....	25 20	262 03	....	....	....	....	287 23	
June 29.........	3623	....	....	....	....	....	1,084 54	3,382 78	....	....	....	....	4,467 32	
June 29.........	3643	1,829 59	4 88	86 11	347 57	8,234 91	....	....	....	1 59	....	172 21	5,676 86	
October 30......	3918	394 34	4 37	17 87	74 26	983 26	....	....	....	1 42	....	35 75	1,511 27	
October 30......	3883	....	....	....	....	....	....	544 40	....	....	....	....	544 40	
		3,298 28	29 73	150 35	628 22	7,692 79	1,109 74	4,189 21	....	10 02	....	300 71	17,409 05	17,409 05

Statement "A."—Continued.

KITTSON COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
March 18	3469	74 25	1 43	3 26	13 89	....	....	....	....	46	....	6 52	99 81	
June 21	3610	154 64	19	7 32	29 42	....	....	....	....	06	....	14 64	206 27	
June 21	3579	....	....	....	....	....	....	172 87	....	....	....	....	172 87	
July 24	3728	....	....	....	....	....	10,378 00	1,397 27	....	....	....	....	11,776 27	
October 25	3869	22 98	19	1 05	4 33	....	....	....	....	06	....	2 11	30 72	
		251 87	1 81	11 63	47 64	....	10,378 00	1,570 14	....	58	....	23 27	12,284 94	12,284 94

LAC QUI PARLE.

March 18	3470	368 08	2 61	17 18	69 90	159 83	....	....	....	76	....	34 36	651 72	
July 21	3722	518 33	81	24 56	98 63	46 59	....	....	....	25	....	49 11	738 28	
November 18 ...	3955	380 07	5 37	17 26	71 77	11 07	....	....	....	1 62	....	34 52	521 68	
		1,266 48	8 79	59 00	240 30	216 49	....	....	....	2 63	....	117 99	1,911 68	1,911 68

Statement "A."—Continued.

LAKE COUNTY.

Date of Payment 1882.	No Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain Sinking. 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal Improvem't Land Fund and Interest.	Forestry.	Total.	Grand Total.
April 10	3492	55 68	1 90	1 68	21 33	....	....	....	....	60	....	3 33	84 52	
June 21	3606	63 95	1 61	2 77	11 97	....	....	....	....	50	....	5 54	86 37	
November 18 ...	3894	27 35	19	1 17	6 54	....	....	....	....	07	....	2 36	37 68	
		146 98	3 73	5 62	39 84	....	....	....	....	1 17	....	11 23	208 57	208 57

LE SUEUR COUNTY.

Date of Payment 1882.	No Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain Sinking. 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal Improvem't Land Fund and Interest.	Forestry.	Total.	Grand Total.
February 18....	3390	....	....	....	....	....	580 00	115 04	....	....	....	....	695 04	
February 18....	3389	....	....	....	....	....	970 00	1,217 83	....	....	....	....	2,187 83	
March 24.......	3498	1,248 59	22 27	54 55	246 63	....	....	....	....	7 43	....	109 09	1,688 56	
March 28.......	3512	....	....	....	....	....	100 00	286 14	....	....	....	....	386 14	
July 3.........	3647	....	....	....	....	....	4,935 30	2,546 57	....	....	....	....	7,481 87	
July 3.........	3654	2,155 45	6 11	101 27	411 06	....	....	....	....	2 14	....	202 53	2,878 58	
October 20......	3390	280 80	....	....	....	....	....	....	....	....	....	....	280 80	
October 30......	3899	176 84	7 12	6 98	33 92	....	....	....	....	2 27	....	13 98	241 11	
October 30......	3916	....	....	....	....	....	170 00	28 27	....	....	....	....	198 27	
		3,861 68	35 50	162 80	691 63	....	6,755 30	4,193 85	....	11 84	....	325 60	16,038 20	16,038 20

Statement "A."—Continued.

LINCOLN COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
April 12........	3570	176 07	3 07	7 74	32 91	....	....	....	....	1 01	....	15 47	236 27	
April 27........	3719	169 79	2 01	7 65	31 95	....	....	....	....	62	....	15 31	227 33	
October 25......	3870	39 61	79	1 71	7 37	....	....	....	....	26	....	3 43	53 17	
		385 47	5 87	17 10	72 23	....	....	....	....	1 87	....	34 21	516 77	516 77

LYONS COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
April 29........	3583	....	....	....	....	....	204 00	143 77	....	....	....	....	347 77	
May 5..........	3585	465 01	33 95	14 80	85 58	234 05	....	....	....	11 45	....	29 59	874 43	
July 17.........	3708	674 94	5 80	26 01	112 30	55 80	....	....	....	2 03	....	52 03	828 91	
July 17.........	3678	....	....	....	....	....	260 00	681 95	....	....	....	....	941 95	
November 29....	3962	149 90	2 68	6 57	28 79	10 50	....	....	....	86	....	13 15	212 45	
November 29....	3965	....	....	....	....	....	53 00	639 60	....	....	....	....	694 60	
		1,189 85	42 43	47 88	226 67	300 35	519 00	1,465 32	....	14 34	....	94 77	3,900 11	3,900 11

Statement "A."—Continued.

McLEOD COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal Improvement land fund and interest.	Forestry.	Total.	Grand Total.
February 6	3414	280 80											280 80	
March 20	3473	1,168 68	39 56	45 33	252 71	55 00				13 93		90 66	1,665 87	
March 30	3512						510 00	287 90	645 00	161 84			1,604 74	
June 23	3626	1,806 00	13 22	82 79	345 61	41 00				4 41		165 59	2,458 62	
June 23	3623						4,593 50	4,673 00	2,439 50	3,306 52	375 11		15,387 63	
October 23	3840							164 41	180 00	68 28			402 69	
October 23	3818	214 91	16 34	6 91	44 81					5 38		13 80	302 15	
		3,470 39	69 12	135 03	643 13	96 00	5,103 50	5,115 31	3,264 50	3,760 36	375 11	270 05	22,102 50	.102 50

MARSHALL COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal Improvement land fund and interest.	Forestry.	Total.	Grand Total.
March 13	3457						801 00	190 13					991 13	
March 30	3541	51 18	6 61	97	8 27					2 20		1 94	71 17	
July 28	3603	176 53	10 02	6 53	31 96					3 17		13 06	241 27	
July 28	3686						4,607 00	1,510 15					6,117 15	
July 28	3727						3,359 00	1,272 49					4,631 49	
September 19	3388						921 00	224 31					1,145 31	
November 20	3884							150 38					150 38	
November 20	3900	76 81	54	3 51	14 51					18		7 08	102 66	
		304 52	17 17	11 04	54 74		9,688 00	3,347 46		5 55		22 08	13,450 56	13,450 56

Statement "A"– Continued.

MARTIN COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions.	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School	General School.	Permanent University.	General University.	Internal Improvem't Land Fund and Interest.	Forestry.	Total.	Grand Total.
March 23......	3546	360 87	....	17 20	68 78	....	....	....	....	....	....	31 36	481 16	
August 8......	3716	986 25	....	46 96	187 81	....	....	....	....	....	....	93 93	1,315 00	
August 8........	3754	....	....	....	....	....	111 00	1,112 04	....	....	1,096 05	....	2,319 09	
September 8....	3775	....	....	....	....	....	339 56	134 04	....	....	108 87	....	582 47	
November 21...	3950	....	....	....	....	....	....	....	....	....	40 56	....	40 56	
November 24...	3947	267 19	....	12 72	50 89	....	....	....	....	....	....	25 45	356 25	
		1,614 31	....	76 88	307 48	....	450 56	1,246 08	....	....	1,245 48	153 74	5,094 53	5,094 53

MEEKER COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions.	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School	General School.	Permanent University.	General University.	Internal Improvem't Land Fund and Interest.	Forestry.	Total.	Grand Total.
January 19......	3362	....	....	....	....	....	364 35	75 14	34 70	7 79	....	....	481 98	
April 3..........	3471	779 62	10 95	34 84	146 32	321 42	....	....	....	3 59	....	69 70	1,366 44	
May 13..........	3579	....	....	....	....	....	616 25	333 29	170 00	60 09	....	....	1,179 63	
July 24.........	3672	....	....	....	....	....	733 94	4,413 45	719 00	1,768 68	....	....	7,635 07	
July 24..........	3707	1,848 26	4 55	87 02	351 08	199 81	....	....	....	1 50	....	174 06	2,666 28	
November 4.....	3928	665 57	....	81 69	126 77	110 06	....	....	....	....	....	63 39	997 48	
November 4.....	3919	....	....	....	....	....	50 00	26 61	....	....	....	....	76 61	
		3,293 45	15 50	158 55	624 17	631 29	1,764 54	4,848 49	923 70	1,841 65	....	307 15	14,403 49	14,403 49

Statement "A."—Continued.

MILLE LACS COUNTY.

Dat ient	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
May 6 ..	3245	495 08	49 80	18 65	354 52	....	....	....	....	21 49	....	....	939 54	
March .	3472	143 61	6 90	3 48	61 11	....	....	....	....	2 93	....	6 96	224 99	
July 2 .	3698	503 88	4 17	17 74	187 65	....	....	....	....	3 07	....	35 49	752 30	
Novem .	3921	102 18	8 42	1 26	55 12	....	....	....	....	3 17	....	2 53	172 68	
		1,241 75	69 59	41 13	658 40	....	....	....	....	30 66	....	44 98	2,089 51	,089 51

MORRISON COUNTY.

March 23.	3488	945 00	56 30	16 20	500 17	....	....	....	....	17 34	....	32 39	1,567 40	
March 28.	3548	....	....	....	....	....	....	47 36	....	....	....	....	47 36	
June 19...	3608	....	....	....	....	....	937 32	1,400 76	....	....	926 11	....	3,264 19	
June 19...	3613	1,103 54	68 58	40 40	199 96	....	....	....	....	21 39	....	80 81	1,514 68	
October 25.	3871	125 65	13 05	3 79	22 17	....	....	....	....	4 02	....	7 57	176 25	
October 25.	3841	....	....	....	....	....	99 50	....	....	....	....	....	99 50	
		2,174 19	137 93	60 39	722 30	....	1,036 82	1,448 12	....	42 75	926 11	120 77	6,669 38	6,669 38

Statement "A."—Continued.

MOWER COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal Improvement land fund and interest.	Forestry.	Total.	Grand Total.
March 28	3515	....	....	....	....	....	3,946 00	620 91	....	55 99	....	....	4,622 90	
March 28	3540	3,463 30	394 56	89 46	591 72	....	....	....	....	125 68	....	178 93	4,843 65	
July 21	3695	3,584 35	23 87	165 38	677 42	....	....	....	....	7 96	....	330 76	4,789 74	
July 21	3667	....	....	....	....	....	6,210 00	5,840 50	2,344 00	347 03	....	....	14,741 53	
October 30	3885	....	....	....	....	....	340 00	237 63	....	....	....	....	577 63	
October 30	3901	1,036 87	19 75	46 44	195 45	....	....	....	....	5 89	....	92 88	1,397 28	
		8,084 52	438 18	301 28	1,464 59	....	10,496 00	6,699 04	2,344 00	542 55	....	602 57	30,972 73	30,972 73

MURRAY COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal Improvement land fund and interest.	Forestry.	Total.	Grand Total.
April 11	3569	238 12	17 70	7 52	41 59	176 57	....	....	....	5 85	....	15 02	502 37	
April 28	3642	472 10	....	22 48	89 93	....	....	....	....	....	....	44 96	629 47	
November 18	3952	179 22	....	8 53	34 14	....	....	....	....	....	....	17 07	238 96	
		889 44	17 70	38 53	165 66	176 57	....	....	....	5 85	....	77 05	1,370 80	1,370 80

Statement "A."—Continued.

NICOLLET COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain Sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
March 18	3476	1,212 61	29 77	50 75	243 18	133 61	....	....	....	9 94	....	101 50	1,781 36	
March 25	3516	....	....	....	....	....	....	12 29	....	....	....	....	12 29	
April 3	3415	305 49	....	....	....	....	....	....	....	....	....	....	305 49	
June 12	3587	2,484 80	4 58	117 19	477 33	47 50	....	....	....	1 51	....	234 38	3,367 29	
June 17	3605	....	....	....	....	....	1,795 76	2,440 04	340 00	596 59	....	....	5,172 39	
October 28	3842	....	....	....	....	....	190 00	48 51	....	96 02	....	....	334 53	
October 28	3815	205 24	2 15	9 31	40 62	....	....	....	....	67	....	18 62	276 61	
		4,208 14	36 50	177 25	761 13	181 11	1,985 76	2,500 84	340 00	704 73	....	354 50	11,249 96	11,249 96

NOBLES COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain Sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
March 28	3536	266 38	1 77	12 28	50 65	74 36	....	....	....	59	....	24 57	430 60	
June 29	3659	766 44	2 10	36 01	147 39	106 05	....	....	....	76	....	72 01	1,130 76	
June 29	3660	....	....	....	....	....	....	1,185 19	....	....	....	....	1,185 19	
November 7	3886	....	....	....	....	....	....	101 57	....	....	....	....	101 57	
November 7	3872	267 06	91	12 51	50 74	1,207 60	....	....	....	30	....	25 02	1,564 14	
		1,299 88	4 78	60 80	248 78	1,388 01	....	1,286 76	....	1 65	....	121 60	4,412 26	4,412 26

Statement "A."—Continued.

NORMAN COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
August 6	3593	....	....	....	....	....	1,557 00	639 10	336 00	139 06	985 59	....	3,656 75	
September 28	3806	....	....	....	....	....	453 00	1,826 66	272 00	844 24	862 55	....	4.258 45	
		....	....	....	....	....	2,010 00	2,465 76	608 00	983 30	1,848 14	....	7,915 20	7,915 20

OLMSTED COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
February 14	3416	140 40	....	....	....	....	....	....	....	....	....	....	140 40	
April 3	3552	2,541 93	9 18	119 33	483 58	....	....	....	....	2 93	....	238 72	3,395 67	
April 3	3553	....	....	....	....	....	4,863 00	23 74	....	....	....	....	4,886 74	
July 20	3689	6,186 03	4 82	293 71	1,177 99	....	....	....	....	1 54	....	587 42	8,251 51	
July 20	3683	....	....	....	....	....	10,467 00	760 29	....	....	....	....	14,227 29	
November 13	3938	781 06	2 04	28 40	290 74	....	....	....	....	66	....	56 81	1,159 71	
		9,649 42	16 04	441 44	1,952 31	....	15,330 00	784 03	....	5 13	....	882 95	82,061 32	32,061 32

Statement "A."—Continued.

OTTER TAIL COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal Improvement land fund and interest.	Forestry.	Total.	Grand Total.
April 10..........	3563	1,637 07	59 22	65 13	300 93	142 65	....	....	....	19 53	....	130 27	2,354 80	
April 19..........	3574	....	....	....	....	....	510 00	140 91	....	....	3,692 19	....	4,343 10	
July 27	3703	....	....	....	....	....	5,545 55	5,034 86	....	....	9,928 68	....	20,509 09	
July 27..........	3592	....	....	....	....	....	2,011 41	826 58	....	....	2,462 93	....	5,300 92	
July 27..........	3700	2,337 35	12 24	108 68	442 88	30 74	....	....	....	4 04	....	217 35	3,153 28	
November 13. .	3939	670 53	31 16	25 73	121 96	....	....	....	....	10 04	....	61 47	910 89	
		4,644 95	102 62	199 54	865 77	173 39	8,066 96	6,002 35	....	33 61	16,083 80	399 09	36,572 08	36,572 08

PINE COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal Improvement land fund and interest.	Forestry.	Total.	Grand Total.
March 18..........	3175	1,172 96	42 79	3 11	990 06	....	....	....	....	23 46	....	6 82	2,239 20	
June 2..........	3601	409 12	3 94	15 79	133 42	....	....	....	....	1 70	....	30 98	594 95	
June 2..........	3596	....	....	....	....	....	6 80	94 81	....	....	....	....	774 81	
October 25..........	3873	95 78	3 72	1 82	53 20	....	....	....	....	1 50	....	3 64	159 66	
		1,677 86	50 45	20 72	1,176 68	....	6 80	94 81	....	26 66	....	41 44	3,768 62	3,768 62

Statement "A."—Continued.

POLK COUNTY.

Date of Payment 1882.	No. Auditor's Drafts	Revenue	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School	General School.	Permanent University.	General University.	Internal Improvement Land Fund and Interest.	Forestry.	Total.	Grand Total.
February 6......	3399	....	....	....	....	....	93 00	22 16	....	....	....	....	115 16	
March 30.......	3551	950 65	26 40	39 53	177 33	....	....	....	....	8 87	....	79 05	1,281 83	
March 30.......	3550	....	....	....	....	....	123 00	88 35	....	....	....	....	211 35	
July 25.........	3673	....	....	....	....	....	1,502 90	6,871 56	....	....	....	....	8,374 45	
July 25.........	3632	....	....	....	....	....	3,263 00	1,338 77	....	....	....	....	4,601 77	
July 25.........	3709	1,482 67	4 41	69 65	281 48	....	....	....	....	1 45	....	139 32	1,978 98	
July 25.........	3674	....	....	....	....	....	255 00	836 74	....	186 94	594 81	....	1,873 49	
November 20...	3957	....	....	....	....	....	159 00	58 34	....	....	....	....	217 34	
November 20...	3956	307 16	5 55	13 63	57 65	....	....	....	....	1 74	....	27 25	412 98	
		2,740 48	36 36	122 81	516 46	....	5,395 90	9,215 91	....	199 00	594 81	245 62	19,067 35	19,067 35

POPE COUNTY.

Date of Payment 1882.	No. Auditor's Drafts	Revenue	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School	General School.	Permanent University.	General University.	Internal Improvement Land Fund and Interest.	Forestry.	Total.	Grand Total.
April 8..........	3491	514 90	16 98	20 91	96 51	453 85	....	....	....	5 53	....	41 83	1,150 51	
April 8..........	3517	....	....	....	....	....	....	25 25	....	47 36	27 17	....	99 78	
July 28..........	3696	857 39	8 11	39 14	161 69	236 80	....	....	....	2 65	....	78 28	1,384 06	
July 28..........	3651	....	....	....	....	....	385 35	2,439 75	....	94 72	3,185 60	....	6,105 42	
September 1....	3774	....	....	....	....	....	839 15	274 75	....	....	2,506 93	....	3,620 83	
October 25......	3843	....	....	....	....	....	....	12 14	....	....	....	....	12 14	
October 25......	3844	254 51	8 39	10 26	46 62	82 66	....	....	....	2 80	....	20 51	425 75	
		1,626 80	33 48	70 31	304 82	773 31	1,224 50	2,751 89	....	153 06	5,719 70	140 62	12,798 49	12,798 49

Statement "A."—Continued.

PIPESTONE COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
March 23	3545	103 40	19	4 88	19 65					06		9 77	137 95	
July 3	3720	128 86	1 34	5 83	24 24					45		11 68	172 40	
October 30	3902	48 53	2 49	1 76	8 70					83		3 51	65 82	
		280 79	4 02	12 47	52 59					1 34		24 96	376 17	376 17

RAMSEY COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
February 14	2801	5,277 94											5,277 94	
March 28	3451						178 50						178 50	
March 28	3557	11,960 41	186 43	476 51	3,119 59					63 37		963 04	16,769 35	
July 6	3684	21,660 09	23 88	1,025 03	4,145 72					8 33		2,050 08	28,913 13	
September 28	....						3,026 50	966 06					3,992 56	
October 26	3878	1,793 28	7 24	83 78	339 97					2 41		167 57	2,394 25	
November 14	3418	5,455 54											5,445 54	
		46,147 26	217 56	1,585 32	7,605 28		3,205 00	966 06		74 11		3,170 69	62,971 27	62,971 27

Statement "A."—Continued.

REDWOOD COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
March 23.......	3474	312 87	6 26	13 30	62 79	....	....	....	....	2 15	....	26 61	423 98	
March 30.......	3518	....	....	....	....	....	476 00	13 50	....	....	....	....	489 50	
June 21.......	3591	1,182 24	3 84	55 55	225 07	....	....	....	....	1 23	....	111 09	1,579 02	
June 24.......	3621	....	....	....	....	....	....	1,376 49	....	....	1,300 37	....	2,676 86	
October 23......	3814	....	....	....	....	....	....	53 31	....	....	184 77	....	238 08	
October 23......	3819	364 49	3 09	16 73	68 84	37 42	....	....	....	1 01	....	33 46	525 04	
		1,859 60	13 19	85 58	356 70	37 42	476 00	1,443 30	....	4 39	1,485 14	171 16	5,932 48	5,932 48

RENVILLE COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
April 6......	3560	512 49	24 71	18 63	112 80	495 53	....	....	....	9 81	....	37 27	1,211 24	
April 6.........	3561	....	....	....	....	....	....	286 95	....	120 89	1,931 64	....	2,339 48	
July 25.........	3680	....	....	....	....	....	403 27	2,287 51	....	173 37	3,536 49	....	6,400 64	
July 25.........	3711	1,216 52	16 36	54 17	239 67	1,766 54	....	....	....	5 74	....	108 34	3,407 84	
		1,729 01	41 07	72 80	352 47	2,262 07	403 27	2,574 46	....	309 81	5,468 13	145 61	13,358 70	13,358 70

Statement "A."—Continued.

RICE COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
January 23.....	3329	....	....	....	....	....	492 83	....	....	....	....	....	492 83	
May 2......	3417	561 60	....	....	....	....	....	....	....	....	....	....	561 60	
May 2..........	3533	2,598 35	2 15	122 78	504 29	....	....	....	....	79	....	245 56	3,473 92	
May 3..........	3527	....	....	....	....	....	1,150 40	60 39	....	....	....	....	1,210 79	
July 25..........	3692	....	....	....	....	....	4,522 70	3,073 29	....	....	....	....	7,595 99	
July 25..........	3701	4,770 50	95 15	206 05	887 86	....	....	....	....	31 71	....	412 09	6,403 36	
November 9.....	3930	820 34	....	39 06	156 25	....	....	....	....	....	....	78 13	1,093 78	
November 9....	3931	....	....	....	....	....	402 75	15 44	....	....	....	....	418 19	
		8,750 79	97 30	367 89	1,548 40	....	6,568 68	3,149 12	....	32 50	....	735 78	21,250 46	21,250 46

ROCK COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
March 30.......	3544	227 88	2 50	10 35	43 35	....	....	....	....	79	....	20 72	305 59	
July 17..........	3693	628 12	78	29 77	119 52	11 13	....	....	....	24	....	59 54	849 10	
July 17..........	3681	....	....	....	....	....	....	1,553 21	....	....	....	....	1,553 21	
November 9....	3926	297 27	26	14 07	56 99	....	....	....	....	13	....	28 14	396 86	
		1,153 27	3 54	54 19	219 86	11 13	....	1,553 21	....	1 16	....	108 40	3,104 76	3,104 76

ST. LOUIS COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions.	Interest.	Sinking.	Seed grain Sinking. 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal Improve. m't Land Fund and Interest.	Forestry.	Total.	Grand Total.
March 20........	3478	1,018 59	11 19	18 61	662 18	....	....	....	....	3 61	....	37 22	1,751 40	
July 5..........	3658	1,376 68	4 42	64 81	261 62	....	....	....	....	1 37	....	129 61	1,838 51	
July 5..........	3631	....	....	....	....	....	....	64 79	....	....	....	....	64 79	
October 25......	3875	61 52	64	2 79	11 58	....	....	....	....	21	....	5 57	82 31	
		2,456 79	16 25	86 21	935 38	....	....	64 79	....	5 19	....	172 40	3,737 01	3,737 01

SCOTT COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions.	Interest.	Sinking.	Seed grain Sinking. 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal Improve. m't Land Fund and Interest.	Forestry.	Total.	Grand Total.
March 23.......	3542	1,383 81	1 07	65 64	263 24	....	....	....	....	35	....	131 27	1,844 88	
March 23.	3554	....	....	....	....	....	839 50	106 54	....	....	....	....	946 04	
June 22.........	3669	....	....	....	....	....	3,045 17	1,407 75	....	....	....	....	4,452 92	
June 22.........	3689	1,828 25	....	87 06	348 23	....	....	....	....	....	....	174 12	2,437 66	
October 24......	3877	225 81	40	10 66	42 93	....	....	....	....	13	....	21 33	301 26	
October 24......	3845	....	....	....	....	....	85 00	185 67	....	....	....	....	270 67	
		3,437 37	1 47	163 36	654 40	....	3,969 67	1,699 96	....	48	....	326 72	10,253 43	10,253 43

SHERBURNE COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
April 8.........	3764	318 95	7 69	13 53	59 52					2 52		27 05	429 26	
April 8	3567							12 19					12 19	
May 13.........	2939						170 00						170 00	
June 30.........	3652							448 59					448 59	
June 30.........	3655	413 15	4 66	18 29	85 35					2 28		36 58	560 31	
November 2.....	3903	119 44	4 11	4 90	22 03					1 31		9 80	161 59	
November 2.....	3887						69 00	573 42		14 21			656 63	
		851 54	16 46	36 72	166 90		239 00	1,031 20		20 32		73 43	2,438 57	2,438 57

SIBLEY COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
March 21.......	3489	1,118 51	19 01	38 90	381 97	43 65				6 39		77 79	1,686 22	
March 24........	3519						100 00	653 39		341 53	394 22		1,489 14	
June 19.........	3604						2,180 00	2,820 07		812 08	1,444 04		7,256 19	
June 19.........	3611	2,283 30	4 30	107 80	435 37	44 75				1 49		215 61	3,092 62	
November 3	3876	179 73	2 18	8 04	31 20					73		16 10	240 98	
November 3.....	3846						774 85	710 00		730 81	532 87		2,748 03	
		3,581 54	25 49	154 74	851 54	88 40	3,054 85	4,183 46		1,893 08	2,370,63	309 50	16,513 18	16,513 18

STEARNS COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
March 18	3482	2,018 03	66 15	82 29	372 50	88 36				21 64		164 58	2,813 55	
March 24	3520						510 00	328 47					838 47	
June 28	3646	3,853 44	5 73	182 34	732 92					1 85		364 70	5,140 98	
June 28	3636						3,479 50	5,419 28	272 00	652 86	50 91		9,874 55	
October 30	3917						340 00	287 85		12 19	14 28		654 32	
October 30	3904	686 57	8 09	30 95	129 38	6 56				2 67		61 89	926 11	
		6,558 04	79 97	295 58	1,234 80	94 92	4,329 50	6,035 60	272 00	691 21	65 19	591 17	20,247 98	20,247 98

STEELE COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
February 27	3419	421 20											421 20	
March 28	3539	1,225 90	7 91	56 85	237 21					2 49		113 69	1,644 08	
March 28	3521						1,799 50	243 28		60 52			2,103 30	
July 20	3682						4,200 50	2,712 72	510 00	728 56			8,151 78	
July 20	3713	2,649 81	48	126 12	504 70					14		252 25	3,533 50	
November 1	3905	421 72		20 08	80 32							40 17	562 29	
November 1	3848						238 00	14 33		123 93			376 26	
		4,718 63	8 42	203 05	822 23		6,238 00	2,970 33	510 00	915 64		406 11	16,792 41	16,792 41

STEVENS COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain Sinking, 1878.	Permanent School.	Genera School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
March 24	3477	317 87	6 03	13 53	65 42	129 06				2 45		27 12	561 48	
March 25	3522							12 24			24 53		36 77	
July 3	3641							1,544 86			873 40		2,418 26	
July 3	3656	798 29	4 27	37 09	151 14	85 31				1 42		74 17	1,154 69	
October 30	3906	232 61	35	11 00	44 22	90 85				12		22 00	401 15	
		1,318 77	10 65	61 62	260 78	308 22		1,557 10		3 99	897 93	123 29	4,572 35	4,572 35

SWIFT COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain Sinking, 1878.	Permanent School.	Genera School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
March 20	3479	615 95	35 43	23 00	115 64	185 73				11 75		45 99	1,063 49	
March 27	3523							263 14					263 14	
June 24	3622						4,216 00	1,346 12					5,562 12	
June 24	3625	720 86	7 93	32 59	135 59	228 93				2 61		65 18	1,198 69	
October 23	3817	395 72	2 10	18 10	74 95	32 75				68		36 80	561 40	
October 23	3849							38 21					38 21	
		1,762 53	45 46	73 99	326 18	447 41	4,216 00	1,647 47		15 04		147 97	8,682 05	8,682 05

TODD COUNTY.

Date of Payment 1888.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
March 30........	3531	364 42	19 11	14 37	74 59	5 40	....	....	....	4 12	....	28 73	503 74	
July 5..........	3649	708 76	9 37	31 74	133 37	17 10	....	....	....	3 09	....	63 47	966 90	
July 5..........	3637	....	....	....	......	....	....	1,616 72	....	....	718 51	....	2,335 23	
November 1.....	3888	....	....	....	....	....	204 00	43 06	....	....	....	....	247 06	
November 1.....	3907	219 94	7 64	9 07	40 67	5 85	....	....	....	2 40	....	18 14	303 71	
		1,293 12	29 12	55 18	248 63	28 35	204 00	1,659 78	....	9 61	718 51	110 34	4,356 64	4,356 64

TRAVERSE COUNTY.

Date of Payment 1888.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
April 8	3480	103 43	1 35	4 62	19 39	....	....	....	....	45	....	9 26	138 50	
August 2.... ...	3718	197 82	2 14	8 94	37 20	....	....	....	....	71	....	17 89	267 70	
		301 25	3 49	13 56	56 59	....	....	....	....	1 16	....	27 15	403 20	403 20

WABASHA COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	nterest.	Sink'ng.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal Improvement land fund and interest.	Forestry.	Total.	Grand Total.
March 16.......	3420	582 82	....	....	....	....	....	....	....	....	....	....	582 82	
March 22.......	3495	1,187 77	15 53	64 56	341 62	....	....	....	....	6 44	....	129 11	2,045 03	
March 22.......	3524	....	....	....	....	....	80 00	....	....	....	....	....	80 00	
June 17.........	3612	....	....	....	....	....	2,124 00	1,185 64	....	....	....	....	3,309 64	
June 17.........	3614	3,734 63	8 67	176 21	711 91	....	....	....	....	2 78	....	352 42	4,986 52	
November 3....	3922	576 59	....	27 46	109 82	....	....	....	....	....	....	54 91	768 78	
November 3....	3850	....	....	....	....	....	....	4 18	....	....	....	....	4 18	
		6,381 81	24 10	268 23	1,163 35	....	2,204 00	1,189 82	....	9 22	....	536 44	11,776 97	11,776 97

WADENA COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	nterest.	Sink'ng.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal Improvement land fund and interest.	Forestry.	Total.	Grand Total.
March 22.......	3494	161 17	4 45	6 86	30 58	....	....	....	....	1 47	....	13 71	221 24	
June 24.........	3615	249 25	1 67	11 55	47 20	....	....	....	....	53	....	23 10	333 30	
June 24.........	3618	....	....	....	....	....	78 00	739 06	....	....	....	....	817 06	
November 2.....	3851	....	....	....	....	....	....	73 42	....	....	....	....	73 42	
November 2.....	3908	54 85	3 30	1 68	15 73	....	....	....	....	1 08	....	3 38	80 02	
		468 27	9 42	20 09	93 51	....	78 00	812 48	....	3 08	....	40 19	1,525 04	1,526 04

WASECA COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
March 25	3535	966 20	21 34	39 48	226 01	....	....	....	....	8 89	....	78 96	1,340 88	
March 25......	3555	....	....	....	....	....	340 00	116 62	....	....	....	....	456 62	
June 27.........	3662	2,639 77	3 38	125 06	502 73	....	....	....	....	1 07	....	250 12	3,522 13	
July 12.........	3687	....	....	....	....	....	3,486 00	1,834 00	....	820 92	....	....	6,140 92	
ovember 1....	3852	....	....	....	....	....	....	30 09	....	....	....	....	30 09	
November 1...	3909	249 46	4 96	10 98	47 46	....	....	....	....	1 52	....	21 98	336 36	
		3,855 43	29 68	175 52	776 20	....	3,826 00	1,980 71	....	832 40	....	351 06	11,827 00	11,827 00

WASHINGTON COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
March 21	3186	2,550 46	67 86	96 20	686 53	....	....	....	....	25 38	....	192 41	3,618 84	
March 28	3422	270 77	....	....	....	....	....	....	....	....	....	....	270 77	
June 29.......	3604	4,174 96	20 03	190 99	862 49	....	....	....	....	7 66	....	381 98	5,638 11	
June 29	3678	....	....	....	....	....	3,776 00	2,262 95	....	....	....	....	6,038 95	
October 20	3823	....	....	....	....	....	180 00	....	....	....	....	....	180 00	
November 1.	3853	....	....	....	....	....	520 00	33 16	....	....	....	....	553 16	
November 1......	3910	429 95	27 64	12 11	134 99	....	....	....	....	9 86	....	21 22	635 77	
		7,426 14	115 53	299 30	1,684 01	....	4,476 00	2,296 11	....	42 90	....	595 61	16,935 60	16,935 60

WATONWAN COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State institutions.	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
March 24.......	3184	325 52	4 77	14 38	63 83	....	....	....	....	1 79	....	28 76	439 04	
March 28.	3525	....	....	....	....	....	....	96 14	....	52 66	....	....	148 80	
July 17...	3630	....	....	....	....	....	....	378 63	....	300 57	14 21	....	693 41	
July 17.........	3657	536 12	86	25 36	102 16	....	....	....	....	31	....	50 72	715 83	
November 1.....	3911	288 04	96	13 50	54 65	....	....	....	....	32	....	27 00	384 47	
November 1.....	3854	....	....	....	....	....	....	233 34	....	109 17	....	....	342 51	
		1,149 68	6 59	53 24	220 94	....	....	708 11	....	464 82	14 21	106 47	2,724 06	2,724 06

WILKIN COUNTY.

Date of Payment 1882.	No. Auditor's Drafts.	Revenue.	State institutions.	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
March 24.......	3558	257 81	2 98	11 26	55 05	....	....	....	....	1 11	....	22 52	350 73	
August 5.......	3714	581 40	2 61	27 00	112 80	....	....	....	....	84	....	54 00	778 65	
August 5.... .	3726	....	....	....	....	....	1,496 00	2,514 38	....	23 68	1,120 32	....	5,154 38	
November 25...	3957	215 80	5 35	7 94	61 71	....	....	....	....	1 91	....	15 90	308 61	
		1,055 01	10 94	46 20	229 56	....	1,496 00	2,514 38	....	27 54	1,120 32	92 42	6,592 37	6,592 37

WINONA COUNTY.

Date of Payment. 1882.	No. Auditor's Drafts.	Revenue.	State Institutions	Interest.	Sinking.	Seed grain sinking, 1878.	Permanent School.	General School.	Permanent University.	General University.	Internal improvement land fund and interest.	Forestry.	Total.	Grand Total.
April 10	3423	289 29											289 29	
April 10	3562	4,605 95	385 35	133 69	791 69					128 45		267 40	6,312 53	
April 10	3566						1,085 00	165 12					1,250 12	
July 15	3688	6,109 42		289 89	1,181 13							579 80	8,160 24	
July 15	3685						5,895 00	3,009 59					8,904 59	
October 2	3855						70 00	20					70 20	
October 23	3816	283 88	4 25	12 58	53 13					1 42		25 14	380 40	
		11,288 54	389 60	436 16	2,025 95		7,050 00	3,174 91		129 87		872 34	25,367 37	25,367 37

WRIGHT COUNTY.

February 17	3121	411 94											411 94	
March 23	3499	2,084 35	78 67	77 83	455 08					26 52		155 66	2,878 11	
April 3	3526						1,795 00	122 85		89 36			2,007 21	
July 3	3640						4,158 40	3,163 03		1,513 39			8,834 82	
July 3	3643	1,765 95		84 09	336 37							168 19	2,354 60	
November 4	3927	304 62		14 51	58 02							29 01	406 16	
November 4	3917						480 00	94 59		14 51			589 10	
		4,566 86	78 67	176 43	819 47		6,433 40	3,380 47		1,643 78		352 86	17,481 94	17,481 94

YELLOW MEDICINE COUNTY.

Date of Payment 1882.	No. Auditor' Drafts	Revenue	State Institutions	Interest.	Sinking	Seed grain sinking, 1878.	Permanent School	General School.	Permanent University.	General University	Internal Improvement Land fund and interest.	Forestry.	Total.	Grand Total.
April 3	3483	357 32	10 09	15 07	66 31	119 03	....	....	....	3 22	....	30 14	631 18	
August 19	3616	750 29	7 69	34 25	141 56	83 00	....	....	....	2 43	....	68 50	1,087 63	
August 19	3767	....	....	....	....	....	....	....	....	....	15 95	....	15 95	
October 30	3912	274 96	2 99	12 60	52 00	44 41	....	....	....	91	....	25 22	413 09	
		1,382 57	20 68	61 92	259 87	276 44	....	....	....	6 56	15 95	123 86	2,147 85	2,147 85

STATEMENT "B."

RECEIPTS INTO THE TREASURY FROM RAILROAD COMPANIES.

Date of Payment. 1882.	FROM WHAT SOURCE RECEIVED.	State Institutions.	Permanent School.	Internal Improv. m't land fund and interest.	Total.
February 8. ...	St. Paul & Duluth railroad company, 3 per cent. tax for 6 months ending Dec. 31, 1881	12,251 92	....	....	12,251 92
February 11....	Chicago & Northwestern railway company, 3 per cent. tax on gross earnings of line from Winona to Gary, for year ending December 31, 1881..........	34,402 16	....	....	34,402 16
February 11....	Chicago & Northwestern railway company, 1 per cent. tax on gross earnings of line from Tracy to State line, for year ending December 31, 1881	776 00	....	....	776 00
February 11....	Chicago & Northwestern railway company 1 per cent. tax on gross earnings of line from Redwood Junction to Redwood Falls to Aug. 5, and 2 per cent from Aug. 6 to Dec. 31, 1881, for year 1881....	159 09	....	....	159 09
February 11....	Chicago & Northwestern railway company, 1 per cent tax on gross earnings from R. & Nor. W. Junction to Zumbrota to October 5, and 2 per cent. from October 6 to December 31, for year ending December 31 1881..	182 34	....	....	182 34
February 11....	Chicago & Northwestern railway company, 1 per cent. tax on gross earnings of line from Plainview Junction to Plainview, to October 22, and 2 per cent. from October 23 to December 31, for year ending December 31, 1881..........	95 88	....	....	95 88
February 11....	Chicago & Northwestern railway company, 1 per cent. tax on gross earnings of line from Chatfield Junction to Chatfield to December 8, and 2 per cent. from December 9 to December 31, for year ending December 31, 1881..........	55 98	....	....	55 98
February 21....	Chicago St. Paul, Minneapolis & Omaha railway company, 3 per cent. tax on gross earnings of line from St. Paul to state line near Bigelow, for 6 months ending December 31, 1881..........	18,722 85	....	....	18,722 85
February 21....	Chicago St. Paul, Minneapolis & Omaha railway company, 2 per cent. tax on gross earnings of line from Lake St. Croix to St. Paul for 6 months, ending December 31, 1881..........	3,908 80	....	....	3,908 80
February 21....	Chicago, St. Paul, Minneapolis & Omaha railway company, 2 per cent. tax on gross earnings of line from Worthington to Valley Springs for 6 months ending December 31, 1881.	728 99	....	....	728 99
February 21....	Chicago, St. Paul, Minneapolis & Omaha railway company 1 per cent. tax on gross earnings of line from Lake Crystal to Elmore, for 6 months ending December 31, 1881..........	158 03	....	....	158 03
February 21....	Chicago, St Paul, Minneapolis & Omaha railway company 1 per cent tax on gross earnings of line from Lu Verne to Rock Rapids for 6 months, ending December 31, 1881	27 70	....	....	27 70
February 21...	Chicago, St. Paul, Minneapolis & Omaha railway company, 1 per cent. tax on gross earnings of line from South Stillwater to Lake St. Croix bridge, for 6 months, ending December 31, 1881..........	48 64	....	....	48 64
February 21....	Chicago, St Paul, Minneapolis & Omaha railway company, 1 per cent. tax on gross earnings of line from Heron Lake to Woodstock for six months ending December 31, 1881..........	59 99	....	....	59 99
February 25....	Northern Pacific railroad company, 2 per cent. tax on gross earnings of line from Duluth to Moorhead, for year ending December 31, 1881	32,182 50	....	....	32,182 50
February 25....	Northern Pacific railroad company, 2 per cent. tax on gross earnings of line from Brainard to Sauk Rapids for year ending December 31 1881	7,316 08	....	....	7,346 08
March 7	St. Paul, Minneapolis & Manitoba railway company, 3 per cent tax on gross earnings of lines from St. Paul to St. Vincent, and Minneapolis Junction to Barnesville and branches, for 6 months, ending December 31, 1881..........	82,533 84	....	....	82,533 84

Statement "B"—*Continued.*

Date of Payment. 1882.	FROM WHAT SOURCE RECEIVED.	State Institutions	Permanent School.	Internal Improvem't Land Fund and Interest.	Total.
March 10	Burlington, Cedar Rapids & Northern railway company, 2 per cent. tax on gross earnings of line from State line to Albert Lea, for year ending December 31, 1881	1,010 13	....	....	1,010 13
March 14	Northern Pacific railroad company, 1 per cent. additional tax on gross earnings of line from Duluth to Moorhead, for 4 months, ending December 31, 1881	8,114 34	....	....	8,114 34
March 21	Chicago, Milwaukee & St Paul railway company, 3 per cent tax on gross earnings of line from Wisconsin State line to St. Paul and Minneapolis for year ending December 31, 1881	49,806 68	....	....	49,806 68
March 21	Chicago, Milwaukee & St Paul railway company, 3 per cent. tax on gross earnings of line from Winnebago City to State line, paid in part for year ending December 31, 1881	3,057 16	....	....	3,057 16
March 21	Chicago, Milwaukee & St. Paul railway company, 3 per cent tax on gross earnings of line from Iowa State line to St. Paul and Minneapolis, for year ending December 31, 1881	20,950 35	....	....	20,950 35
March 21	Chicago, Milwaukee & St. Paul railway company, 3 per cent tax on gross earnings of line from Hastings to State line and from Benton Junction to Minneapolis, for year ending Dec 31, 1881	17,976 41	....	....	17,976 41
March 21	Chicago, Milwaukee & St Paul railway company, 3 per cent tax on gross earnings of line from Wisconsin State line to Winnebago, for year ending December 31, 1881	16,825 65	....	....	16,825 65
March 21	Chicago, Milwaukee & St. Paul railway company, 2 per cent tax on gross earnings of line from State line to La Crescent, for year ending December 31, 1881	1,409 65	....	....	1,409 65
March 21	Chicago, Milwaukee & St Paul railway company, 1 and 2 per cent. tax on gross earnings of line from Wabasha to Zumbrota, for year ending December 31, 1881	907 77	....	....	907 77
March 21	Chicago, Milwaukee & St. Paul railway company 2 per cent. tax on gross earnings of line from Wells to Mankato, for year ending December 31, 1881	700 71	....	....	700 71
March 21	Chicago, Milwaukee & St. Paul railway company, 1 per cent tax on gross earnings of line from Caledonia Junction to Preston, for year ending December 31, 1882	345 25	....	....	345 25
March 21	Caledonia, Mississippi & Western railroad company, 1 per cent. tax on gross earnings of line from Preston to Caledonia Junction for 8 months, ending August 31, 1880	322 09	....	....	322 09
March 21	Chicago, Clinton, Dubuque & Minnesota railroad company, 2 per cent tax on gross earnings of line from New Albin to La Crosse Junction for ten months ending October 31, 1880	722 22	....	....	722 22
April 22	St. Paul & Duluth railroad company, 1 per cent. tax on gross earnings of line from Wyoming to Taylor's Falls, for 6 months, ending December 31, 1881	27 06	....	....	27 06
May 15	Minneapolis & St. Louis railway company, 1 per cent. tax on gross earnings of line from Wyoming to Taylor's Falls for year ending December 31, 1881	66 17	....	....	66 17
May 15	Minneapolis & St. Louis railway company, 2 and 3 per cent. tax on gross earnings of line from Duluth to Iowa State line, for year ending December 31, 1881	20,334 57	....	....	20,334 57
August 5	St. Paul & Duluth railroad company, 3 per cent. tax on gross earnings of line from St. Paul to Duluth, for 6 months ending June 30, 1882	11,721 66	....	....	11,721 66
August 17	Chicago, St. Paul, Minneapolis & Omaha railway company, 3 per cent tax on gross earnings of line from St. Paul, to State line near Bigelow, for 6 months ending June 30, 1882	14,889 09	....	....	14,889 09
August 17	Chicago, St. Paul, Minneapolis & Omaha railway company, 3 per cent. tax on gross earnings of line from Lake St. Croix to St. Paul for 6 months, ending June 30, 1882	5,012 68	....	....	5,012 68
August 17	Chicago, St. Paul, Minneapolis & Omaha railway company, 3 per cent. tax on gross earnings of line from Lake St. Croix to St. Paul for 1½ months ending February, 15 1882	1,140 46	....	....	1,140 46
August 17	Chicago St. Paul, Minneapolis & Omaha railway company, 2 per cent tax on gross earnings of line from Worthington to Valley Springs for 6 months, ending June 30, 1882	527 24	....	....	527 24

August 17......	Chicago, St. Paul, Minneapolis & Omaha railway company, 1 per cent. tax on gross earnings of line from Lake Crystal to Elmore for 6 months, ending June 30 1882................................	280 70	....	....	280 70
August 17......	Chicago, St. Paul, Minneapolis & Omaha railway company, 1 per cent. tax on gross earnings of line from Heron Lake to Woodstock, for six months, ending June 30, 1882............................	40 97	....	....	40 97
August 17......	Chicago, St Paul, Minneapolis & Omaha railway company, 1 per cent. tax on gross earnings of line from Luverne to Rock Rapids for six months, ending June 30, 1882................................	18 37	....	....	18 37
September 28...	Cedar Rapids, Iowa Falls & Northwestern railway company, right of way over N. E., N. E. 32, 101. 38	....	....	16 68	16 68
October 12....	St. Paul, Minneapolis & Manitoba railway company, 3 per cent. tax on gross earnings of main line and branches in Minnesota for six months, ending June 30, 1882........................	100,531 55	....	....	100,531 55
November 8....	St Paul Union Depot company, 1 per cent tax on gross earnings of Depot, for year ending December 31, 1881..	176 98	....	....	176 98
November 14...	Minnesota Central railroad company, for lot 8, in S. E. ¼ S. 36, T. 112, R. 20, used as right of way and depot grounds..	....	20 00	....	20 00
		470,556 65	20 00	16 68	470,593 33

STATEMENT "C."

RECEIPTS INTO THE TREASURY FROM STUMPAGE ON STATE LANDS.

Date of Payment. 1882.	FROM WHAT SOURCE RECEIVED.	Revenue.	Permanent School.	General School.	Permanent University	General University.	Internal Improvement Land Fund and Interest.	Swamp Land Fund.	Total.
January 2	Clough Bros., pine timber cut in 1880-1		410 93						410 93
January 6	Chase, Pillsbury & Co., for right to clear of pine timber 36-134-30, 16 and 36-136-30 and 16 and 36-136-31		4,037 25						4,037 25
January 6	John Martin & Co., for right to clear of pine timber, section 36-41-21		500 00						500 00
January 6	O. P. Whitcomb, State Auditor, collected from C. N. Nelson, stumpage				13,344 34				13,344 34
January 6	O. P. Whitcomb, State Auditor, collected from C. N. Nelson, stumpage					1,441 25			1,441 25
January 6	O. P. Whitcomb, State Auditor, collected from C. N. Nelson, stumpage		2,194 23						2,194 23
January 6	O. P. Whitcomb, State Auditor, collected from C. N. Nelson, stumpage			248 18					248 18
January 10	C. H. Chadbourn, pine timber cut in 1880-1				69 20				69 20
January 10	C. H. Chadbourn, pine timber cut in 1880-1		112 94						142 94
January 10	Alex. Johnson, for right to clear of pine timber, section 16-42-23		450 00						450 00
January 10	James Mallory, for right to clear of pine timber, section 19-42-23		100 00						100 00
January 10	D. Peterson, pine timber cut in 1880-1		168 17						168 17
January 10	H. B. Chase, pine timber cut in 1880-1		300 99						300 99
January 10	H. B. Morrison, pine timber cut in 1880-1		39 17						39 17
January 10	H. B. Morrison, pine timber cut in 1880-1		589 36						589 36
January 10	H. L. Gordon, pine timber cut in 1880-1		1,112 00						1,112 00
January 10	J. A. Davis & Co., pine timber cut in 1880-1		145 02						146 02
January 10	J. A. Davis & Co., pine timber cut in 1880-1		1,148 21						1,148 21
January 10	J. W. Johnson, pine timber cut in 1880-1				15 83				15 83
January 10	J. W. Johnson, pine timber cut in 1880-1		592 04						592 04
January 10	J. W. Johnson, pine timber cut in 1880-1				691 36				691 36
January 16	Diamond Mill Co., for right to clear of pine timber, 36-140-25		1,000 00						1,000 00
January 17	Geo. W. Bray, pine timber cut in 1880-1				529 43				529 43
January 17	Bronson & Folsom, for right to clear of pine timber, 36-41-22		2,850 00						2,850 00
January 17	Bronson & Folsom, interest on deferred stumpage payment			503 60					503 60
January 19	B. F. Brown, pine timber cut in 1880-1		54 66						54 66

January 21	Libby & Rogers, pine timber cut in 1880-1,		299 26						299 26
January 25	O. P. Whitcomb, collected from Todd, Conner, Gaines & Co., stumpage		1,582 50	106 00					1,688 50
January 25	O. P. Whitcomb, collected from W. W. Allen, stumpage		356 04						356 04
January 25	O. P. Whitcomb, collected from C. N. Nelson, stumpage				12,805 25	274 67			13,079 92
February 6	W. H. Lawrence, pine timber cut in 1880-1		338 39						338 39
February 6	G. G. Hartley, for right to clear of pine timber, 30-53-24		100 00						100 00
March 6	Sampson Dower, pine timber cut in Todd county		245 70						245 70
March 7	T. W. Wilson & L. Stanchfield, by O. P. Whitcomb, stumpage	132 61	2,837 64	54 41					3,024 66
March 15	Clark & McClure, pine timber cut in 1880-1		1,012 52						1,012 52
March 15	Clark & McClure, pine timber cut in 1880-1		440 43						440 48
March 15	Clark & McClure, pine timber cut in 1880-1		590 74						590 74
May 1	W. W. McNair, for right to clear of pine timber, 16 and 36-40-28		200 00						200 00
May 4	Philip Boyden, pine timber cut 1881-2		621 54						621 54
May 30	J. A Tibbetts, pine timber cut in 1881-2		895 93						695 98
July 1	Page Bros., account stumpage on 35 and 36-10-27		300 00		100 00				400 00
July 19	Chas. F. Bean, pine timber cut in 1881-2		1,197 30						1,197 30
July 19	Chas. F. Bean, pine timber cut in 1881-2		1,768 87						1,768 87
August 5	H. B. Cowles, for trespass of D. B. B. Chisholm on 36-38-26		188 70						188 70
August 5	James Tibbetts, trespass on 13 and 21-47-24	20 14						154 14	174 28
August 15	Aitken Lumber Co., pine timber cut in 1882		27 94						27 94
August 16	Merriman, Barrows & Co., pine timber cut in 1882		49 02						49 02
August 16	Merriman, Barrows & Co., pine timber cut in 1882		3,279 73						3,279 73
August 19	Farnham & Lovejoy, pine timber cut in 1882		597 80						597 80
August 19	D. J. Knox, trespass on 29 and 32-46-26	25 00						559 26	584 26
August 19	F. Bonness, trespass on 5 and 8-46-24	25 00						142 14	167 14
August 19	Hobert & Chatterton, trespass on 34-56-26	10 00						22 80	32 80
August 25	M. Stewart & Co., pine timber cut in 1882		147 96						147 96
August 26	Camp & Walker, balance for pine timber cut in 1882, on 16-142-25		593 80						593 80
August 26	Camp & Walker, pine timber cut in 1882		2,595 79						2,596 79
September 1	J. A. Davis & Co., pine timber cut in 1882						47 98		47 98
September 1	J. A. Davis & Co., pine timber cut in 1882						450 27		450 27
September 1	J. A. Davis & Co., ½ scaleage	5 55							5 55
September 1	Merriman, Barrows & Co., trespass in 1881-2	21 45						858 38	879 83
September 1	Merriman, Barrows & Co., interest							39 00	39 00
September 4	Chase, Pillsbury & Co., pine timber cut in 1882		601 94						601 94
September 4	Chase, Pillsbury & Co., pine timber cut in 1882		427 50						427 50
September 5	Jos. Whitcomb, pine timber cut in 1880-1		415 28						415 28
September 6	C. H. Chadbourn, pine timber cut in 1882				217 75				217 75
September 6	C. H. Chadbourn, pine timber cut in 1882		109 86						109 86
September 8	D. & D. W. Grant, trespass on 21, 32, 26 and 27-39-25				168 00				168 00
September 12	Clough Bros., pine timber cut in 1882		6,899 95						6,899 95
September 14	George H. Warren, pine timber cut in 1880-1		266 80						266 80
September 14	George H. Warren, pine timber cut in 1880-1				1,525 58				1,525 58
September 15	George H Warren, pine timber cut in 1882		80 31						80 31

Statement "C,"—Continued.

Date of Payment. 1882.	FROM WHAT SOURCE RECEIVED.	Revenue.	Permanent School.	General School.	Permanent University.	General University.	Internal Improvement Land Fund and Interest	Swamp Land Fund.	Totals.
September 15	George H. Warren, pine timber cut in 1882				165 85				165 85
September 15	Jos. Whitcomb, pine timber cut in 1882		704 64						701 64
October 2	G. C. Campbell, pine timber cut in 1882		65 42						65 42
October 2	Dan Cammell, trespass in 1881-2		450 00						450 00
October 2	Dan Cammell, trespass in 1881-2	35 00							35 00
October 2	James Fleming, trespass in 1881-2	22 93						237 96	260 80
October 11	H. B. Morrison, pine timber cut in 1882		306 72						306 72
October 11	McMullin & Co., pine timber cut in 1879-'80		522 56						522 56
October 12	B. F. Hartley, pine timber cut in 1880-1		201 12						201 12
October 12	John Valentine, pine timber cut in 1880-1		458 21						458 24
October 16	Berry & Howard, pine timber cut in 1877-8		300 39						300 89
October 16	Berry & Howard, interest			42 06					42 05
October 16	Hartley & Slipp, pine timber cut in 1879-'80		19 40						19 40
October 20	Benj. Soule, trespass on 36-38-27	7 00	69 00						76 00
October 21	G. C. Campbell, ½ scaleage	1 64							1 64
November 4	James Fleming, pine timber cut in 1882		259 19						259 19
November 4	Groff, Little & Co., pine timber cut in 1882		1.611 61	18 67					1,630 28
November 14	H. L. Gordon, pine timber cut in 1882		2.208 96						2,208 96
November 16	W. H. Lawrence, pine timber cut in 1882		578 96						578 96
November 17	Isaac Staples, interest for one year on 36-39-26			110 88					110 88
November 17	Isaac Staples, right to clear 16, 18 and 20-43-23		300 00						300 00
November 17	Isaac Staples, right to clear 16-38-23		175 00						175 00
November 17	Isaac Staples, right to clear 16-40-25		800 00						800 00
November 17	Isaac Staples, interest			33 56					33 46
November 18	Durant, Wheeler & Co., pine timber cut in 1881-2		462 47						462 47
November 23	A. Tozer, pine timber cut in 1881-2		174 15						174 15
	Totals	306 32	54,216 99	1,117 25	2,632 59	1,715 92	498 25	2,013 68	89,501 00

STATEMENT "D."

RECEIPTS INTO THE TREASURY FROM MISCELLANEOUS SOURCES.

Date of Payment. 18-2.	FROM WHAT SOURCE RECEIVED.	Revenue.	Permanent School.	General School.	Perman't University.	General University.	Internal Improvement.	Internal Improve-m't Fund and Interest.	Attorney 12th District.	Total.
December 30.	$24,000 U. S. 4 per cent. bonds, sold from Permanent University fund				27,726 00	240 00				27,966 00
December 30.	$5,000 U. S 6 per cent bonds, sold from Permanent University fund				6,445 00	150 00				6,595 00
December 30.	$112,000 Missouri 6 per cent bonds, Hanibal & St. Joseph, sold				134,506 50	3,660 00				138,165 50
December 30.	$108,000 U. S. Registered 6 per cent. bonds, sold from Internal Improvement land fund							141,277 00		141,277 00
December 30.	$1 000 Missouri 6 per cent. bonds, Hanibal & St. Joseph, sold from Internal Improvem't land fund.							1,119 00		1,119 00
December 30.	$74,000 U. S. 4 per cent bonds, sold from Internal Improvement land fund							86,228 50		86,228 50
January 3	$99 000 U. S. 6 per cent bonds, sold from Permanent school fund		127,710 00							127,710 00
January 3	$100,000 U. S. 4 per cent. bonds, sold from Permanent school fund		117,058 00							117,058 00
January 6	Interest on U. S 4 per cent bonds			2,410 00						2,410 00
January 10	$141,000 U. S 4 per cent bonds sold from Permanent school fund		165,245 10							165,245 10
January 25	Interest on 398 U S. 6 per cent. bonds			11,940 00						11,940 00
January 31	Insurance Commissioner fees for January, 1882	1,157 00								1,157 00
January 31	Insurance Commissioner taxes for January, 1881	11,020 09								11,020 09
January 31	Interest on deposits for December, 1881	1,340 69								1,340 69
February 1	Collected for Attorney 12th District								332 10	332 10
February 6	Collected for Attorney 12th District								4 00	4 00
February 8	Collected for Attorney 12th District								50 84	50 84
February 8	Interest on deposits for January, 1882	549 62								549 62
February 10	Collected for Attorney 12th District								74 17	74 17
February 16	Collected for Attorney 12th District								54 75	51 75
February 20	Special Laws sold	1 15								1 15
February 28	Insurance Commissioner taxes, 1881	16,415 11								16,415 11
February 28	Insurance Commissioner fees for February, 1882	2,489 00								2,489 00
March 3	Interest on deposits for February, 1882	325 92								325 92
March 10	Special Laws sold	2 00								2 00
March 21	Interest on Missouri 6 per cent bonds			14,760 00						14,760 00
March 21	State Auditor, grass cut on school land in Otter Tail county			80						80

Statement "D"—Continued.

Date of payment, 1882.	FROM WHAT SOURCE RECEIVED.	Revenue.	Permanent School.	General School.	Perman't Univer-sity.	General Univer sity.	Internal Improve-ment.	Internal Improve-ment fund and Interest.	Attorney 12th District.	Total.
March 21	Hon. C. A. Pillsbury, refunded per diem for court Impeachment session, 1882	250 00								250 00
March 21	Geo. Garity, ties trespass on school land		6 75							6 75
March 28	F. S Christenson, 90 yards matting	18 00								18 00
March 30	J A. Reed, Warden, keeping U S convicts	25 25								25 25
April 1	Insurance Commissioner taxes, 188	4,924 63								4,924 63
April 1	Insurance Commissioner fees for March, 1882	1,168 00								1 168 00
April 6	Collected for Attorney 12th District								134 75	134 75
April 6	Interest on deposits for March, 1882	611 00								611 00
April 6	Interest on 105 State bonds, 73 and 85 State bonds '78			6,225 00						6,225 00
April 8	Collected for Attorney 12th District								49 50	49 50
April 10	Collected for Attorney 12th District								24 50	24 50
April 11	Collected for Attorney 12th District								184 42	184 42
April 14	Collected for Attorney 12th District								111 75	111 75
April 17	Collected for Attorney 12th District								159 25	159 25
April 18	State Auditor, grass cut on school land		60 04							60 04
April 19	Special Laws sold	1 15								1 15
May 2	Insurance Commissioner taxes, 1881	3,315 02								3,315 02
May 2	Insurance Commissioner fees for April 1882	371 00								371 00
May 2	Special Laws sold	2 80								2 80
May 13	Interest on deposits for April, 1882	765 09								765 09
May 13	J. A. Reed, Warden, keeping U S. convicts, first quarter, 1882	126 25								126 25
May 20	42 State bonds, loan of 1873 redeemed		42,000 00							42,000 00
May 20	13 State bonds, loan of 1878 redeemed		13,000 00							13,000 00
May 20	Interest on 42 bonds loan '73, and 13 bonds loan '78			870 30						870 30
June 3	Insurance Commissioner taxes, 1881	670 65								670 65
June 3	Insurance Commissioner fees May, 1882	263 00								263 00
June 5	Special Laws sold	1 15								1 15
June 15	J A. Reed, warden, U. S military convicts, 1st qr. 1882	33 75								33 75
June 22	Interest on deposits for May, 1882	596 02								596 02
July 5	Insurance Commissioner taxes 1881	355 26								355 26
July 5	Insurance Commissioner fees June 1882	207 00								207 00
July 7	Collected for Attorney 12th District								134 75	134 75
July 8	Collected for Attorney 12th District								124 75	124 75
July 10	Collected for Attorney 12th District								60 25	60 25
July 11	Collected for Attorney 12th District								49 50	49 50
July 11	U. S. Government, 5 per cent. on land sales						17,938 39			17,938 39
July 15	Collected for Attorney 12th District								54 75	54 75
July 17	Collected for Attorney 12th District								38 50	38 50
July 19	21 Missouri 6 per cent. bonds "called"		21,000 00							21,000 00
July 19	**Interest on 21 Missouri 6 per cent. bonds "called"**			330 00						330 00
July 19	**Special Laws sold**	1 00								1 00

July 25	Special Laws sold	3 80								3 80
July 29	Interest on deposits for June, 1882	500 05								500 05
July 29	Interest on Missouri 6 per cent. bonds held by Permanent school fund			21,030 00						21,030 00
August 2	Collected for Attorney 12th District								25 00	25 00
August 7	Insurance Commissioner fees for July, 1882	133 00								133 00
August 7	Insurance Commissioner taxes, 1881	449 83								449 83
August 8	J. A. Reed, warden, keeping U. S. military convicts	91 00								91 00
August 8	Special Laws sold	1 00								1 00
August 19	J. A. Reed, warden, keeping U. S. civil convicts, second quarter, 1882	103 00								103 00
August 28	Interest on deposits for July, 1882	933 35								933 35
August 28	Interest on Missouri 6 per cent. bonds			2,310 00						2,310 00
September 5	Insurance Commissioner taxes, 1881	381 96								381 96
September 5	Insurance Commissioner fees August, 1882	251 00								251 00
September 14	A. Currie and A. T. Crow, damage		58 45							58 45
September 19	Collected for Attorney 12th District								43 50	43 50
September 21	Interest on deposits for August, 1882	1,035 58								1,035 58
October 2	Collected for Attorney 12th District								134 75	134 75
October 3	Special Laws sold	1 00								1 00
October 3	Collected for Attorney 12th District								93 75	93 75
October 4	Collected for Attorney 12th District								94 50	94 50
October 7	Collected for Attorney 12th District								135 50	135 50
October 7	Insurance Commissioner fees September, 1882	159 00								159 00
October 11	Collected for Attorney 12th District								56 75	56 75
October 16	Collected for Attorney 12th District								54 75	54 75
October 20	Interest on R. R. adjustment bonds, first coupon			16,738 95						16,738 95
October 20	Interest on R. R. adjustment bonds, first coupon					5,422 50				5,422 50
October 21	Special Laws sold	2 00								2 00
October 24	Interest on deposits for September, 1882	940 29								940 29
October 30	Special Laws sold	6 00								6 00
October 31	33 State bonds loan 1873, redeemed		33,000 00							33,000 00
October 31	7 State bonds loan 1878 redeemed		7,000 00							7,000 00
October 31	72 Coupons on loan 1873, and 63 coupons loan '78			4,365 00						4,365 00
November 1	Insurance Commissioner, taxes	292 63								292 63
November 1	Insurance Commissioner fees October, 1882	157 00								157 00
November 8	J. A. Reed, warden, keeping U. S convicts, 3d qr.	115 00								115 00
November 9	U. S. Gov., acc. lands sold on Winnebago Res.	31,623 04								31,623 04
November 15	Special Laws sold	5 00								5 00
November 17	Regents University, refundment of money advanced					2,000 00				2,000 00
November 23	Insurance Commissioner, taxes	597 67								597 67
November 25	Interest on deposits for October	750 68								750 68
November 29	Insurance Commissioner, taxes	408 93								408 93
November 29	Special Laws sold	10 00								10 00
November 29	Interest on deposits October, 1882	58 94								58 94
November 29	State Auditor, grass cut on school lands			1,225 52						1,225 52
November 29	5 State bonds loan 1873, redeemed		5,000 00							5,000 00
November 29	4 State bonds loan 1873, redeemed		4,000 00							4,000 00
November 29	5 Coupons 7 pr ct. and 4 coupons 6 pr ct., redeemed			245 85						245 85
		86,022 35	535,138 34	82,451 42	168,676 58	11,472 50	17,938 39	278,624 50	2,201 03	1,182,525 08

STATEMENT "E."

Received from County Treasurers for School Text Book Fund.

Becker	292	33
Benton	240	10
Big Stone	442	56
Blue earth	19[illegible]	[illegible]
Carlton	16[illegible]	08
Carver	30	90
Chippewa	54	55
Chisago	128	98
Clay	356	77
Cottonwood	186	19
Crow Wing	46	58
Dodge	77	43
Douglas	101	85
Faribault	3[illegible]6	57
Fillmore	628	02
Freeborn	13	45
Goodhue	249	83
Grant	76	13
Houston	480	21
Isanti	468	77
Jackson	274	96
Kandiyohi	42	78
Kittson	161	80
Lac qui Parle	91	92
Lake	5	64
Le Sueur	489	87
Lincoln	213	71
McLeod	423	30
Morrison	241	64
Mower	3[illegible]6	05
Murray	441	15
Nobles	88	11
Norman	23	53
Olmsted	103	37
Otter Tail	338	88
Polk	22	46
Pope	363	20
Pipe Stone	20	09
Redwood	279	74
Scott	57	00
Sherburne	23	83
Sibley	152	08
Stearns	286	21
Swift	2[illegible]3	00
Todd	697	79
Traverse	21	24
Wabasha	44	10
Wadena	6[illegible]1	0

Waseca	239 11
Winona	436 57
Wright	481 26
Yellow Medicine	233 65
Total	13,066 39

EXPENDITURES

From December 1, 1881, *to November* 30, 1882.

Preparing and publishing tax laws, 1876	1,000 00
Tree planting claims, 1877	256 00
Selling state lands, 1877	3 00
Deaf, dumb and blind support, 1879	1,750 89
Printing, advertising and binding, 1879	5,131 10
Tree planting claims, 1879	60 00
Selecting university lands, 1879	321 25
Supreme court reports, (vol. 27), 1879	1,200 00
Water supply, university, 1879	1,000 00
Prison water pipes, 1879	520 00
Selling state lands, 1880	186 41
Printing, advertising and binding, 1880	25 50
Auditor's extra clerk, 1880	285 00
State costs, 1881	8 85
Binding law books, 1881	8 00
Supreme court reports, 1881	400 00
Rent of arsenal deficiency, 1881	108 48
Watonwan county, 1881	54 55
Pine county, 1881	750 00
Chippewa river bridge (Swift co.), 1881	400 00
Chippewa river bridge (Chippewa co.) 1881	600 00
Yellow Medicine river bridge, 1881	100 00
Big Cottonwood river bridge, 1881	250 00
Watonwan river bridge, 1881	350 00
Blue Earth river bridge, 1881	300 00
Long Prairie river bridge, 1881	200 00
Spring Vale (Rum river) bridge, 1881	300 00
Mustinka river bridge, 1881	50 00
Lake Winona river bridge, 1881	400 00
Second hospital insane kitchen, 1881	8,000 00
Enlarging St. Cloud Normal school grounds, 1881	150 00
Deaf, dumb and blind institution, enlarging grounds, 1881	4,000 00
Indexing laws, extra session, 1881	200 00
Mankato normal school grounds extension, 1881	1,800 00
Winona normal school, improving grounds, 1881	4,750 00
Reform school cistern	2,000 00
Binding law books deficiency, 1881	223 70
Verndale and Kindred state road bridges, 1881	800 00
Blue Earth river bridges (Fairbault co.), 1881	500 00
Watonwan river bridge, 1881	250 00
Kandiyohi lake bridge, 1881	500 00
Chippewa river bridge, 1881	[illegible]

Mantorville river bridge, 1881	300 00
Des Moines river bridge, 1881	600 00
Chippewa and Lac qui Parle county bridge, 1881	400 00
Lac qui Parle bridge, 1881	495 00
Rock river bridge (Pipestone co.), 1881	580 00
Chippewa river bridge, 1881	200 00
Pomme de Terre river bridge	250 00
Rock river bridge, 1881	400 00
Lake Victoria bridge, 1881	400 00
Rock river bridge (Rock co.), 1881	1,500 00
Prairie lake bridge, 1881	350 00
Avoka and Princeton road, 1881	175 00
Buffalo creek bridge, 1881	300 00
Cass county bridges, 1881	1,000 00
Second hospital insane, water supply, 1881	5,000 00
Law library contingent deficiency, 1881	189 60
Salaries, judges, 1881	11,851 90
Training school institutes, 1881	235 00
Agricultural societies, 1881	108 11
Selling state lands, 1881	640 32
Selecting indemnity lands, 1881	1,590 03
Printing advertising and binding, 1881	5,506 65
Law library	3,158 70
Requisitions, 1881	287 80
Sheriff's fund	63 15
Tree planting claims, 1881	1,272 00
Express and mileage, 1881	518 47
Fuel and lights, 1881	22 05
State board of health, 1881	763 26
State board of immigration, 1881	447 35
High school board, 1881	15,814 28
Minnesota national guards, 1881	900 00
Rebuilding capitol, 1881	30,695 85
Capitol roof, 1881	7,000 00
Boiler room, etc., capitol, 1881	1,500 00
Repairs and furnishing capitol, 1881	96 85
Insane support, first hospital, 1881	6,028 79
Insane support, second hospital, 1881	3,108 81
Deaf, dumb, blind and imbecile support, 1881	4,074 93
Prison current expenses, 1881	6,290 57
Historical society, 1881	1,138 42
Legislative fund, extra session, 1881	28,867 65
Governor's salary, 1881	317 24
Secretary's salary, 1881	150 00
Auditor and land commissioner's salary, 1881	250 00
Treasurer's salary, 1881	291 74
Attorney general's salary, 1881	208 38
Adjutant general's salary, 1881	125 00
Superintendent public instruction, salary, 1881	208 35
Railroad commissioner's salary, 1881	250 00
Insurance commissioner's salary, 1881	166 85
Librarian's salary, 1881	166 82
Public examiner's salary, 1881	291 70
Janitor's salary, 1881	100 00
Engineer's salary, 1881	100 00
Firemen and day laborer's salary, 1881	60 00
Assistant engineer and night watchman, 1881	37 50

Military storekeeper, 1881	66 68
Messenger's salary, 1881	50 00
Governor's private secretary's salary. 1881	750 00
Assistant secretary and statistican, 1881	166 74
Secretary's clerk salary, 1881	83 37
Auditor's chief clerk, 1881	166 72
Land clerk's salary, 1881	125 00
Deputy treasurer's salary, 1881	125 00
Attorney general's salary, 1881	100 00
Public instruction clerk's salary, 1881	100 00
Insurance commissioner clerk's salary, 1881	300 00
Superintendent of fruit farm salary, 1881	166 67
Clerk supreme court salary, 1881	125 00
Reporter supreme court salary, 1881	150 00
Marshal supreme court salary, 1881	100 00
State land agent's salary, 1881	822 00
Governor's clerk salary, 1881	100 00
Extra clerks insurance commissioner, salary, 1881	75 00
Adjutant general's clerk salary, 1881	100 00
Deputy clerk supreme court salary 1881	83 33
Stationery and document clerk's salary, 1881	50 00
Attorney general's contingent, 1881	178 25
Insurance commissioner's contingent, 1881	33 27
Public examiner's contingent, 1881	249 80
Executive contingent, 1881	266 48
Superintendent public instruction contingent, 1881	2 84
Fish Commissioners, 1881	1,500 00
State Horticultural society, 1881	869 00
First hospital insane, building, 1881	50,000 00
First hospital insane, furnishing, 1881	5,000 00
First hospital insane, heating, 1881	5,000 00
First hospital insane, repairs, 1881	2,000 00
Auditor's extra clerk salary, 1881	529 01
Idiots and imbeciles building, 1881	195 49
State board immigration deficiency, 1891	2,637 66
Wolf bounties, 1881	1,239 00
Legislative deficiency, 1881	18 00
Investigating St. Cloud normal school, 1881	39 04
Publishing laws, newspaper deficiency, 1881	634 40
Publishing general laws, extra session, 1881	671 00
Printing, advertising and binding deficiency, 1881	5,500 00
Printing paper deficiency, 1881	372 65
Stationery deficiency, 1881	697 41
Furnishing offices, market house, 1881	1,186 29
Bond adjustment expenses, 1881	1,724 92
Farmers' board of trade, 1881	611 25
Mississippi river commission, 1881	830 00
Winona normal school support, 1882	14,000 00
Mankato normal school support, 1882	11,023 38
St. Cloud normal school support, 1882	12,000 00
Training schools and institutes, 1882	8,000 00
Agricultural societies, 1882	2,783 78
Executive contingent, 1882	1,293 80
Salaries judges supreme court, 1882	15,999 88
Salaries judges 1st district, 1882	5,833 20
Salaries judges 2d district, 1882	8,458 20
Salaries judges 3d district, 1882	2,916 60

Salaries judges 4th district, 1882	5,648 56
Salaries judges 5th district, 1882	2,916 65
Salaries judges 6th district, 1882	2,916 60
Salaries judges 7th district, 1882	2,625 00
Salaries judges 8th district, 1882	2,916 60
Salaries judges 9th district, 1882	3,052 74
Salaries judges 10th district, 1882	2,916 60
Salaries judges 11th district, 1882	2,916 64
Salaries judges 12th district	2,333 34
Auditor's contingent, 1882	499 72
Attorney general's contingent, 1882	643 93
Public examiner's contingent, 1882	1,294 69
State library, 1882	465 00
Printing paper, 1882	4,151 73
Stationery, 1882	891 22
Printing, advertising and binding, 1882	9,617 08
Selling State lands, 1882	2,461 27
State board of health, 1882	1,3 1 02
Express and mileage, 1882	319 34
Fuel and lights, 1882	2,456 32
Arrest and conviction horse theives, 1882	2,299 98
Wolf bounties	8,000 00
Sheriffs' expenses, 1882	2,801 65
Tree planting claims, 1880	1,052 00
Prison wall, grading, etc., 1882	1[illegible] 01
Insane support, first hospital, 1882	98,443 13
Insane support, second hospital, 1882	39, 46 37
Deaf, dumb, blind and imbecile support, 1882	39,248 33
Reform school support, 1882	32,000 00
Prison current expenses, 1882	45,067 80
Historical society, 1880	2,253 51
Finishing and furnishing capitol, 1882	99,993 44
First hospital insane, basement and center building, 1882	5,000 00
Idiots' and imbeciles' building, 1882	15,000 00
Minnesota national guards	2,967 23
Interest on railroad adjustment bonds, 1882	88,086 45
Governor's salary, 1882	3,483 27
Secretary's salary, 1882	1,650 00
Auditor and land commissioner's salary, 1882	2,750 00
Treasurer's salary, 1882	2,9 6 60
Attorney general's salary, 1882	2,291 63
Adjutant general's salary, 1882	1,375 00
Superintendent public instruction salary, 1882	2,083 30
Railroad commissioner's salary, 1882	2,500 00
Insurance commissioner's salary, 1882	1,833 20
Librarian's salary	1,833 26
Public examiner's salary	3,208 30
Janitor's salary, 1882	1,100 00
Engineer's salary, 1882	1,100 00
Fireman and day laborer salary, 1882	660 00
Assistant engineer and night watchman salary, 1882	225 00
Military storekeeper, 1882	733 27
Messenger, 1880	550 00
Governor's private secretary salary, 1882	1,125 00
Governor's clerk salary, 1882	1,100 00
Assistant secretary and statistican, 1882	1,823 27
ecretary's clerk salary, 1882	916 63

Stationery and doc. clerk salary, 1882		550 00
Auditor's chief clerk salary, 1882		1,583 27
Land clerk's salary, 1882		1,875 00
Auditor's extra clerks salary, 1882		2,898 26
Deputy treasurer's salary		1,650 00
Attorney general's clerk salary, 1882		1,100 00
Public instruction clerk, salary, 1882		1,100 00
Insurance commissioner's clerk, salary, 1882		1,100 00
Insurance commissioner's additional clerk, salary, 1882		800 00
Superintendent fruit farm, salary, 1882		833 33
Adjutant general's clerk, salary, 1882		1,100 00
Clerk supreme court, 1882		1,875 00
Deputy clerk, supreme court, 1882		916 63
Reporter supreme court, 1882		1,250 00
Marshall supreme court, 1882		100 00
Secretary's contingent, 1882		864 83
Commissioner statistics' contingent, 1882		185 00
Treasurer's contingent, 1882		244 58
Insurance commissioner's contingent, 1882		246 05
Railroad commissioners' contingent, 1882		96 00
Superintendent public instruction contingent, 1882		451 26
Library contingent, 1882		236 28
Supreme court contingent,		844 60
State costs, 1882		95 68
Requisitions, 1882		400 55
Rent of arsenal, 1882		407 00
State board equalization, 1882		990 90
Registers and receivers' fees, 1882		347 00
Fish commissioners, 1882		3,000 00
Second hospital, insane, building east wing, 1882		39,836 90
Second hospital, insane, furnishing, 1882		1,000 00
Second hospital, insane, heating, 1882		3,500 00
Second hospital, insane, east wing extension, 1882		13,209 70
Legislative manual, 1882		235 00
State horticultural society, 1882		500 00
Total paid from revenue, state institutions and internal improvement fund appropriations, 1882		$ 1,015,700 40
Interest fund—Interest paid on State loans	12,311 15	
Sinking fund, 80 bonds of loan of 1873, redeemed	80,000 00	
Seed grain sinking fund, 21 bonds, loan of 1878, redeemed	24,000 00	
Permanent school fund, 1033 Minn., 4½ railroad adjustment bonds, purchased	1,033,000 00	
Permanent school fund, sundry warrants paid	715 63	
General school fund apportionments	259,121 80	
General school fund, sundry warrants paid	2,919 84	
Permanent university fund, 241 Minn. 4½ per cent, railroad adjustment bonds purchased	241,000 00	
Permanent university bonds, warrants paid	30 00	
General university fund, support	53,894 13	
Internal improvement land fund, 322 Minn. 4½ per cent. railroad adjustment bonds, purchased	322,000 00	
Attorney, 12th district fund, paid attorney	2,201 03	
School text book fund, paid contractor	11,420 28	
Total		$3,058,317 21

ANNUAL REPORT

OF THE

SECRETARY OF STATE,

TO THE

LEGISLATURE OF MINNESOTA,

FOR THE

FISCAL YEAR, ENDING NOVEMBER 30, 1882.

MINNEAPOLIS:
JOHNSON, SMITH & HARRISON.
1883.

1-6

STATE OF MINNESOTA,
DEPARTMENT OF STATE,
ST. PAUL, DEC. 15, 1882.

Hon. Lucius F. Hubbard,
Governor of Minnesota:

YOUR EXCELLENCY:

I have the honor herewith to transmit my annual report for the fiscal year ending November 30th, 1882. It contains a full record of the business of this department.

I have the honor to be,
Very respectfully,
Your obedient servant,
FRED VON BAUMBACH,
Secretary of State.

REPORT.

To the Honorable the Legislature of the State of Minnesota:

The Annual Report of this Department is herewith submitted:

LIST OF INCORPORATIONS.

ORGANIZED UNDER THE LAWS OF THE TERRITORY AND STATE OF MINNESOTA.

NAME OF INCORPORATION.	WHEN FILED.			Page.	Book.
	Month.		Year.		
Academy of Music of the State of Minnesota	April	19	1861	Original.	
Anoka Library Association	Feb.	14	1867	30	B
Austin and Northwood Railway Co.	May	29	1869	198	"
Anoka Christian Association	Aug.	18	1869	222	"
An act to incorporate the Western Transportation and Mining Co. (State of Maine), also (State of Maine) An act additional to chapter forty-six of the Revsed Statutes concerning corporations (authorizing change of name of corporations)	May	1	1871	498	"
Albert Lea and State Line Railway Co.	Sept.	2	1871	581	"
Acker Post No. 21, Department of Minnesota, Grand Army of the Republic	Feb.	20	1873	650	"
Albert Lea Reading Room Association	April	1	1873	670	"
Audubon Printing Co.	June	27	1873	700	"
Arbeiter Verein of New Ulm	Aug.	12	1873	713	"
Arbeiter Verein of New Ulm	July	29	1874	118	C
American Postal Telegraph Co.	Oct.	31	1874	176	"
Appleton Lyceum and Library Association	Feb.	12	1875	230	"
Austin Driving Park Association	April	30	1875	274	"
Anoka Lumber Mills (certificate)	June	18	1875	283	O L & C
American Tube Well Hydrant Co.	Aug.	11	1875	313	C
Alexandria Library Association	Nov.	30	1875	344	"
Aspelund Society	Nov.	25	1876	526	"
American Railway Car Runner Co.	July	3	1877	50	D
All Saints' Church, Lakeville	Jan.	7	1878	192	"

NAME OF INCORPORATION.	WHEN FILED. Month.	Year.	Page.	Book.
"Ariel" Association	April 5	1878	287	D
Academy of our Lady of Lourdes	July 11	1878	370	“
Alexandria Elevator and Warehouse Ass'n.	Dec. 5	1878	432	“
Alpha Beta Phi	Dec. 31	1878	465	“
Agricultural Colonization Co. of Albert Lea.	March 26	1879	588	“
Austin and Mankato Railroad Co	Jan. 28	1880	157	E
Arizona Northern Mining Co	May 22	1880	344	“
Anchor Manufacturing Co. (certificate)	Oct. 25	1880	489	“
Anchor Manufacturing Co	Nov. 29	1880	515	“
Albert Lea Creamery Co	May 10	1881	206	F
Austin Railway Co	May 19	1881	229	“
Anchor Manufacturing Co. (amendment)	Aug. 1	1881	296	“
Anchor Manufacturing Co. (amendment)	Aug. 1	1881	299	“
Appleton Mill Co	Aug. 31	1881	380	“
Arctic Storage Co	Dec. 30	1881	550	“
Annunciation Church, Hazelwood	Jan. 25	1882	21	C C R 2
Anchor Manufacturing Co. (amendment)	Feb. 18	1882	12	G
Angus Stock and Farming Co	March 30	1882	143	“
Architectural Association of Minnesota	April 5	1882	179	“
Appollo Club, Minneapolis	April 11	1882	199	“
Assumption Church, Hancock	May 23	1882	59	C C R 2
American Home Exchange and Trust Co. of Minnesota	Sept. 6	1882	547	G
Anoka Sash and Door Co	Nov. 3	1882	15	H
American Mutual Matrimonial Dowry Association	Nov. 6	1882	36	“
American District Telegraph Co	Nov. 24	1882	82	“
Board of Trustees, Minnesota Church Foundation	Sept. 19	1856	Original.	
Bishop Seabury Mission	June 1	1860	16	A
Board of Trustees, Minnesota Church Foundation	Aug. 26	1863	38	“
Brownsville Turners' Society	Feb. 15	1867	31	B
Board of Trade of Hastings	May 26	1868	125	“
Board of Trade of Mankato	Sept. 26	1868	146	“
Blue Earth County Medical Society	July 29	1869	213	“
Board of Trade of St. Peter	March 18	1870	306	“
Brotherhood of the Church of Gethsemane	Sept.	1870	348	“
Blue Earth College	March 4	1871	414	“
Berlin Cheese Manufacturing Co	May 18	1871	441	“
Board of Trustees of the Minneapolis Female Seminary	Feb. 7	1872	511	“
Belle Plaine Salt Co	Aug. 16	1872	566	“
Brainerd Lumbering and Manufacturing Co.	Sept. 5	1872	578	“
Board of Trade of Minneapolis	Dec. 11	1872	615	“
Board of Trade of St. Paul	Feb. 1	1873	634	“
Brownsdale Grangers Building Association.	July 3	1873	702	“
Blue Earth County Medical Society	March 5	1872	528	“
Butchers' Mutual Benefit Society of St. Paul.	Feb. 4	1874	790	“
Baptist Union of Minneapolis	Dec. 6	1874	192	C
Brownsville and Root River Internal Improvement Co	Dec. 26	1874	196	“ “
Brotherhood of Locomotive Engineers	Feb. 10	1875	225	“
Baytown Trout Co	Feb. 13	1875	231	“

NAME OF INCORPORATION.	WHEN FILED.			Page.	Book.
	Month.		Year.		
Blue Earth Valley Stock Co	April	17	1876	412	
Baptist Centennial Committee	July	14	1876	465	"
Bank of Farmington (certificate)	July	24	1876	468	"
Board of Trade of Kasson	Feb.	5	1877	550	"
Blue Earth Valley Railway Co	March	14	1877	571	"
Board of Trade of City of Austin	Feb.	9	1876	369	"
Brownsville Mutual Aid Society	Jan.	7	1878	188	D
Bennett Osborn Manufacturing Co	April	30	1878	300	"
Bird Island Townsite Co	Sept.		1878	407	"
Bryant Library Association of Sauk Center	Jan.	25	1879	500	"
Big Stone Lake and Lake Traverse Internal Improvement and Transportation Co	Aug.	19	1879	32	E
Bradner Smith Paper Co	Oct.	25	1879	63	"
Bristol Silver Mining Co	Dec.	19	1879	104	"
Belle Plaine Hall Association	April		1880	233	"
Bankers' Association of Minnesota	Aug.	6	1880	428	"
Barnesville and Moorhead Railway Co	Aug.	10	1880	451	"
Bailey Manufacturing Co	Sept.	28	1880	472	"
Big Stone Lake and Lake Traverse Internal Improvement and Transportation Co. (amendment)	Feb.	15	1881	615	"
Bristol Syndicate	April	27	1881	180	F
Bristol Syndicate (By-Laws)	April	27	1881	182	"
Bricklayers' Benevolent Union	June	18	1881	265	"
Brule River Improvement and Booming Co.	Aug.	5	1881	304	"
Brainerd, St. Paul and Grand Forks Railroad and Telegraph Co	Aug.	8	1881	310	"
Belt Packing Co	Aug.	27	1881	355	"
Bohemian Literary Society of Minnetonka	Jan.	6	1882	555	"
Belt Packing Co. (amendment)	Feb.	17	1882	10	G
Board of Trade of the City of Brainerd	March	31	1882	160	"
Brandon Farmers Elevator Association	April	25	1882	226	"
Brainerd Telegraph and Telephone Co	April	26	1882	240	"
Bristol Silver Mining Co. (By-laws)	May	26	1882	348	"
Bishop Whipple School	June	10	1882	409	"
Bishop Seabury Mission	June	15	1882	423	"
Bristol Silver Mining Co. (Amended By-laws)	June	16	1882	431	"
Bohn Manufacturing Co	Sept.		1882	544	"
Bristol Development Co.	Oct.	21	1882	662	"
Bristol Development Co. (By-Laws)	Oct.	21	1882	665	"
Bank of Minnesota	Oct.	26	1882	694	"
Bristol Development Co. (Amended By-laws)	Nov.	8	1882	39	H
Brainerd Water and Power Co	Nov.	17	1882	57	"
College of St. Paul	Dec.	29	1854	Original.	
Charter Oak Bridge Co	Oct.	30	1858	3	A
Charter Oak Railroad Co	Oct.	30	1858	5	"
Christ Church, Orphan's Home and Hospital for Minnesota in St. Paul	Sept.	11	1860	Original.	
Cottonwood Coal Co	Oct.	12	1864	Original.	
Cannon River Improvement Co	Feb.	17	1865	Original.	
Calvary Church (Wilton)	May	22	1865	Original.	
Chaska Concordia	May	16	1857	56	B
Chamber of Commerce of St. Paul	March	30	1868	116	"
Catholic Mut. Benevolent Society of St. Paul.	May	2	1868	118	"

NAME OF INCORPORATION.	WHEN FILED.			Page.	Book.
	Month		Year.		
Cornell Library Association of Glenwood....	May	5	1868	120	B
Comee Lodge No. 25, I. O. of O. F....... ...	June	19	1869	205	“
Catholic Orphan's Asylum Ass. of St. Paul..	Nov.	23	1870	360	“
Corinthian Lodge....	March	6	1871	416	“
College of St. John..	Aug.	12	1871	456	“
Chicago, Dubuque & Minnesota Railroad Co	Nov.	6	1871	476	“
Connon Valley Agricultural and Mech'l Ass	Nov.	6	1872	599	“
Church Hospital & Orphan's Home of St. Paul	March	15	1873	659	“
Connon River Manufacturing Co. (certificate)	June	6	1873	697	“
Cannon River Impr't Co. (amended articles)	March	19	1872	528	“
Caledonia & Mississippi Railway Co........	Dec.	3	1873	757	“
Convent and Academy of the Visitation.....	Dec.	4	1873	764	“
Claremont Flouring Mill Co...............	Jan.	17	1874	766	“
Cannon River Manufacturing Co. (certificate)	Jan.	30	1874	195	O L & C
Cannon River Manufacturing Co. (certificate)	Jan.	30	1874	197	“
Cannon City Mill Co. (certificate)...........	March	13	1874	203	“
Citizens' Publishing Company of Minnesota..	Feb.	4	1874	791	B
Cannon City Mill Co....................	March	11	1874	30	C
Chapman Binder Co......................	April	22	1874	42	“
Catholic Industrial School of Minnesota.....	April	23	1874	58	“
Co-operative Barrel Manufacturing Co......	Dec.	2	1874	188	“
Catholic Printing Company of Minnesota...	May	31	1875	296	“
Cannon City Mill Co. (amended articles)....	July	10	1875	310	“
Cottage Grove Cornet Band...............	Sept.	6	1875	318	“
“Cech” of City of St. Paul...............	Feb.	26	1876	379	“
Centennial Trade Mark Co........	Aug.	21	1879	481	“
Co-operative Barrel Manufacturing Company, (amended articles)..................	Oct.	31	1876	321	O L & C
Cannon River Manufacturing Association...	Feb.	13	1877	557	C
“Cech” (amended articles)................	April	13	1877	1	D
Church of our Lady of Lourdes........	Aug.	28	1877	94	“
Church of “Guardian Angels” of Dakota...	Nov.	7	1877	135	“
Caledonia Lodge No. 20, A. F. and A. M...	Dec.	26	1877	173	“
Capital Building Society................ ..	Jan.	2	1878	182	‘
Catholic Mutual Insurance Assiciation......	March	2	1878	259	‘
Chatfield Railroad Company..............	May	1	1878	310	‘
Co-operative Publishing Co. of Minneapolis..	May	28	1878	314	‘
Champion Lodge No. 13, Knights of Pythias of St. Paul..................	Nov.	14	1878	419	“
Cedar Lake Ice Company..................	Dec.	14	1878	439	“
Caledonia Mississippi & Western R. R. Co..	April	2	1879	551	“
Chicago & Dakota Railroad Co............	May	8	1879	575	
Catholic Orphan Asylum Ass. of Minneapolis	May	14	1879	596	“
Citizens' Protective Association...........	Aug.	27	1879	35	E
Cokato Elevator Co	Oct.	11	1879	59	“
Cannon River Manufacturing Co.,(certificate)	May	7	1879	512	O L & C
Cannon River Improvement Co., (resolution)	Dec.	3	1878	465	“
Claremont Library Association.............	Dec.	9	1879	113	E
Como Railway Co.......................	March	30	1880	225	“
Concordia Singing Society of St. Cloud......	April	10	1880	243	“
Chaska Hook and Ladder Co. No. 1	April	26	1880	285	“
Charles Horton Lumber Co................	May	12	1880	306	“
Co-operative Mercantile Association........	May	26	1880	366	“
Chippewa Co. Agric'l and Mech'l Association	May	26	1880	384	“

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Corning Farming Association	June	28	1880	395	E
Charles Horton Lumber Co	July	13	1880	414	“
Convent of the Ursuline Nuns of Lake City	Sept.	14	1880	465	“
Columbia Building and Loan Society	Nov.	1	1880	495	“
Chengwatona Mining Co	Nov.	11	1880	503	“
Clerical Benevolent Society of the Diocese of St. Paul	Dec.	9	1880	533	“
Centrel Minnesota & Dakota Railway Co	Dec.	20	1880	539	“
Corlies & Chapman Co	Jan.	26	1881	574	“
Ceder Lake Ice Co., (certificate)	March	4	1881	11	F
Cokato Farmers Association	March	10	1881	209	“
Chamber of Commerce	June	8	1881	246	“
Corlies & Chapman Co., (amendment)	Aug.	22	1881	335	“
C. N. Nelson Lumber Co., (amendment)	Aug.	25	1881	341	“
Chi Psi Association	Sept.	2	1881	372	“
Colman Mining Co	Sept.	20	1881	387	“
Colman Minning Co., (by-laws)	Oct.	17	1881	407	“
Chamber of Commerce of Minneapolis	Oct.	19	1881	421	“
Capital Building So'y of St. Paul, (amend't)	Nov.	9	1881	460	“
Christopher Stahlmann Brewing Co	Dec.	12	1881	501	“
Children's Home Society	Dec.	13	1881	505	“
Capital Blank Book and Printing House	Dec.	22	1881	539	“
Capital Blank Book and Printing House, (certificate)	Dec.	22	1881	542	“
Chicago, Freeport & St. Paul R. R. Co. and St. Paul, Minneapolis & Chicago R. R. Co. (Articles of Consolidation)	Jan.	9	1882	557	“
Carlton Lumber Co	Jan.	11	1882	566	“
Cottage Park Association	March	3	1882	41	G
Chicago, Freeport & St. Paul and the Chicago, Freeport & Northwestern R R.Co.,(Articles of Consolidation, Consent of Stockholders and List of Stockholders)	March	27	1882	126	“
Crookston Telegraph and Telephone Exchange and Electric Light Co	April	20	1882	212	“
Central Land Co.	May	19	1882	325	“
Cedar Rapids, Iowa Falls & N. W. Ry Co.	May	26	1882	340	“
Corrington & Casey Land Co	May	31	1882	358	“
Columbia Building & Loan So'y (amendm'ts)	June	9	1882	403	“
Carver County German Reading Association	June	22	1882	435	“
Crookston Skandinavian Evangelical Lutheran Congregation	July	20	1882	471	“
Cloquet Manufacturing Co	Aug.	15	1882	508	“
Concordia, Jordan	Aug.	15	1882	511	“
Cigar Makers' Protective Union No. 98	Aug.	16	1882	519	“
Cloquet Manufacturing Co., (certificate)	Aug.	16	1882	524	“
Central Land Co. (amendment)	Sept.	29	1882	599	“
Columbia Mill Co	Oct.	24	1882	673	“
Central Railway Co	Oct.	25	1882	676	“
Compressed Block and Patent Asphaltum Co	Nov.	24	1882	79	H
Corning Farming Association, (amendment)	Nov.	27	1882	93	“
Deutsche Katholische Druck Geshellshaft of St. Paul	June	3	1868	132	B
Democrat Printing Co	Sept.	8	1868	144	“

NAME OF INCORPORATION.	WHEN FILED.			Page.	Book.
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Dodge County Medical Society.............	May	24	1869	188	B
Duluth Library Association.	Oct.	20	1869	240	"
Duluth Dock Co........................	Nov.	16	1869	243	"
Duluth Ladies' Seminary Association.......	Jan.	4	1870	262	"
Duluth Gas Light Co................. ...	March	25	1870	309	"
Duluth Printing Co.....................	May	5	1870	318	"
Duluth Mutual Building Association No. 1..	June	15	1870	330	"
Duluth Water Co........................	Dec.	30	1870	369	"
Dodge Co. Agricultural and Mechanical S'y	July	18	1871	448	"
Duluth Hose Co. No. 1...................	July	26	1871	451	"
Davenport and St. Paul Railroad Co.	Feb.	23	1872	519	"
Duluth Savings Bank....................	May	14	1872	546	"
Duluth, Fergus Falls & Breckenridge R.R.Co	Aug.	22	1872	571	"
Duluth Land Co........................	Jan.	6	1873	623	"
Duluth Blast Furnace Co...........	Feb.	29	1873	648	"
Duluth, St. Cloud & Yankton Railway Co..	March	3	1873	654	"
Detroit Town Site and Land Co...........	Apri		1873	672	"
Detroit Lake Manufacturing Co...........	April	8	1873	685	"
Duluth Bethel Association,....	Sept.	5	1873	734	"
Duluth Lake Transportation Co..........	Jan.	21	1874	770	"
Dodge City Cheese Manf't. Ass., (certificate).	June	18	1874	223	O L
Douglas County Fair Ground Association...	June	22	1874	101	
Duluth Iron Range Railroad Co............	Jan.	9	1875	207	"
Duluth Turnverein	Sept.	16	1875	323	"
Dover Center Patrons' Elevator Co...... ...	Oct.	2	1875	328	"
"Dania," articles of association...........	March	20	1876	385	"
Duluth & Dakota Railroad Co............	April	19	1876	415	"
Detroit Lake & Pelican River Slackwater Co	July	31	1876	470	"
Diamond Mills, Red Wing, (certificate).....	Feb.	9	1877	328	O L &
Dubuque & Minnesota Railroad Co.........	Jan.	22	1878	202	D
Deutsch Catholic St. Bonifacius Unterstuetzung Verein	Jan.	31	1878	224	"
Delta Sigma Society of Minneapolis	Feb.	9	1878	233	"
Duluth & Winnipeg Railroad Co...........	Feb.	11	1878	240	"
Druids' Farming Colonization Co...	April	4	1878	280	"
Delano Hook & Ladder Co...............	June	6	1878	336	"
Democratic Printing Co..................	June	8	1878	338	"
Duluth Lodge No. 58, A. O. U. W.........	Aug.	23	1878	387	"
Duluth, Iowa & Dakota Railroad Co.......	Feb.	27	1879	516	"
Dominican Fathers.......................	April	23	1879	565	"
Damon Lodge No. 5, K. of P	Aug.	28	1879	39	E
Duluth Iron Co..........................	Nov.	19	1879	82	"
Dubuque & Minnesota R.R.Co.,(proceedings)	Feb.	8	1879	525	O L & C
Dubuque, St. Paul & Minneapolis R. R. Co.	Jan.	13	1880	131	E
Dassel Elevator Co.......	Feb.	4	1880	184	"
Dakota Mining Co........	April	14	1880	240	"
DeGraff Hall Association.................	May	18	1880	330	"
Douglas County Blooded Stock Association...	May	18	1880	333	"
Dakota Gold Mining Co..................	June	16	1880	377	"
Duluth Water Co...........	Dec.	27	1880	548	"
Duluth Board of Trade..................	Jan.	6	1881	553	"
Duluth & Vermilion Railroad Co...........	Jan.	28	1881	581	"
Duluth Telephone Co.....................	Feb.	21	1881	621	"
Dakato County Building Association.......	March	15	1881	50	F

NAME OF INCORPORATION.	WHEN FILED.			Page.	Book.
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Duluth Brick and Tile Co.	March	24	1881	86	F
Duluth and Winnipeg Railroad Co. (amendment)	April	22	1881	165	"
Delano Elevator Co.	May	6	1881	191	"
Duluth Temperance Society.	May	31	1881	232	"
Duluth Free Reading Room and Library Association	Aug.	5	1881	300	"
Duluth Iron Co. (amendment)	Aug.	29	1881	358	"
Dakota Farming Co	Sept.	1	1881	362	"
Duluth and Dakota Railroad and Telegraph Co	Oct.	12	1881	403	"
Duluth Street Railway Co.	Oct.	18	1881	415	"
Duluth Hotel Co.	Nov.	23	1881	468	"
Duluth & Winnipeg R. R. Co. (amendment)	Jan.	3	1882	554	"
Delta Sigma Society (amendment)	Feb.	3	1882	612	"
Duluth Boom Co.	Feb.	15	1882	628	"
Duluth Building and Loan Association	April	8	1882	187	G
Duluth Telephone Co. (amendment)	May	19	1882	324	"
D. M. Gilmore Furniture Co.	May	26	1882	336	"
Danish Evangelical Lutheran Congregation of Minneapolis	Sept.	14	1882	566	"
Danish Evangelical Lutheran St. Ansgars Congregation of Stillwater, Minn.	Sept.	19	1882	574	"
Duluth Electric Light & Power Co.	Oct.	21	1882	659	"
David Bradley & Co.	Oct.	21	1882	667	"
Druids Relief Association of the State of Minnesota	Oct.	27	1882	697	"
Eagle Mill Co. (Letter of Attorney)	July	..	1858	Origi	nal.
Eagle Mill Co	May	..	1857	Origi	nal.
Evangelical Lutheran Saint Martin's Church of Winona	Dec.	15	1857	Origi	nal.
Elysium Co	March	12	1858	Origi	nal.
Eagle Mill Co., New Ulm	July	14	1858	Origi	nal.
Excelsior College	March	4	1867	41	B
Excelsior Hook and Ladder Co. No. 1	Feb.	28	1868	102	"
Elk River Library Association	March	20	1873	664	"
Eliota Enterprise Co	April	10	1873	680	"
Elk River Library Association	Feb.	19	1874	12	C
East Side Water Co	Aug.	6	1874	123	"
Evangelical Lutheran St. John's Church at Red Wing.	Jan.	28	1879	482	D
Eureka Grange Building Association	March	8	1879	520	"
Evening Journal Co	Feb.	27	1880	192	E
Empire Engine and Hose Co. No. 1, Delano	May	13	1880	325	"
Evangelical Lutheran Minister Association.	June	17	1880	381	"
Evangelical Lutheran St. John's Church of Wykoff	Jan.	26	1881	21	F
Edison Electric Light Co	June	9	1881	248	"
Ellsworth Consolidated Mining Co.	Nov.	1	1881	440	"
Evangelical Lutheran Congr. of the Unaltered Augsburg Confession, Dundas	Nov.	2	1881	446	"
Evangelical Congregation of Albion, Wright Co., Minn.	Jan.	21	1882	587	"
Ellsworth Consolidated Mining Co. (By-laws)	March	9	1882	63	G

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Eclipse Milling Co	March 28	1882	151	G
Ellsworth Consolidated Mining Co. (Amendment)	May 8	1882	285	"
Emanuel's Church of St. Paul	June 6	1882	377	"
Ellsworth Consolidated Mining Co. (Resolutions)	June 6	1882	386	"
Eagle Mining Co	June 16	1882	429	"
Eclipse Milling Co. (Certificate)	Sept. 13	1882	572	"
Edwards Lumber Co	Oct. 27	1882	1	H
First Congregational Church and Society of Glencoe	Sept. 16	1858	1	A
First German Society of Support of Invalids.	Feb. 19	1861	Original.	
French River Mining Co	Aug. 16	1863	41	A
French River Mining Co. (withdrawn and re-filed)	Nov. 16	1863	Original.	
First Universalist Society, St. Paul	March 1	1866	Original.	
First Universalist Church, Rochester	March 21	1866	Original.	
Faribault Chair Factory	Dec. 5	1867	78	B
Faribault Board of Trade	July 3	1868	135	"
Free Men's Society of Osseo	Feb. 5	1869	169	"
Fillmore County Electric Medical Society	June 21	1869	207	"
Fillmore County Medical Society	July 26	1869	211	"
Forest City Town Hall Association	July 27	1870	342	"
Farmington Library Association	Nov. 29	1871	480	"
Faribault Gas Light Co	Oct. 10	1872	589	"
Faribault Gas Light Co	Sept. 23	1873	743	"
Fergus Falls Fire Department Association	Feb. 5	1874	1	C
Firemen's Relief Association of Minneapolis.	March 5	1874	22	"
Farmers' Monticello Mill Co	March 11	1874	29	"
Forestdale Cheese Factory (certificate)	April 16	1874	209	O L & C
Franklin Grove No. 2, U. A. O of D	April 25	1874	47	C
Farmer's Association of Freeborn Co.	July 3	1874	104	"
Faribault Building and Loan Association	Aug. 28	1874	139	"
Farmers' and Mechanics' Savings Bank of Minneapolis	Sept. 10	1874	150	"
Faribault Mutual Loan and Building Ass'n.	Nov. 17	1874	182	"
Father Mathew Catholic Total Abstinence and Benevolent Society	Dec. 18	1874	195	"
Farmers' and Mechanics' Savings Bank of Minneapolis (amended articles)	May 11	1875	285	"
Fillmore and Mower County Agricultural Society (Constitution and By-laws)	July 3	1875	305	"
Faribault Library	Aug. 25	1875	317	"
Farmers' Mill Co	Jan. 3	1876	352	"
Firemen's Life Association	Feb. 8	1876	365	"
Fair Haven Grange No. 388	March 27	1876	387	"
Farmers' Co-operative Co. of Osakis	April 27	1876	420	"
Franklin Building Society	Oct. 18	1876	506	"
Farmers' Widows' and Orphans' Relief Fund	Oct. 25	1876	512	"
First German Society of the M. E. Church, St. Paul	Nov. 17	1876	520	"
F. L. Johnson Co	March 22	1877	575	"
Faribault Mutual Loan and Building Association (amended articles)	May 15	1877	349	O L & C

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Fifth Ward Building Society	Dec.	3	1877	164	D
Fillmore and Mower County Agricultural Society	Jan.	23	1878	205	"
Farmers' Association of Freeborn County	Jan.	29	1878	214	"
Franciscan Brotherhood of Minnesota	Sept.	10	1878	394	"
Farmers' and Mechanics' Joint Stock Association of Worthington	Oct.	28	1878	410	"
Florence Mining and Smelting Co	Dec.	24	1878	489	"
Forest Mills Co	Sept.	9	1879	52	E
Florence Mining and Smelting Co. (amendment)	Jan.	17	1880	147	"
Faribault Lodge No. 16, K. of P	March	4	1880	214	"
Florence Mining and Smelting Co. (amendment)	Jan.	19	1881	573	"
Fergus Flour Mills	April	21	1881	185	F
Fond du Lac Boom and Improvement Co	Oct.	18	1881	417	"
Fergus Falls Foundry and Manufacturing Co. (certificate)	Dec.	13	1881	509	"
First M. E. Church of Verndale	Jan.	14	1882	574	"
Fergus Falls Building Association	Jan.	28	1882	594	"
First Unitarian Society of Minneapolis	Jan.	31	1882	605	"
Fergus Falls Cornet Band	Feb.	13	1882	622	"
Fergus Brush Electric Co	Feb.	2	1882	610	"
Freeborn Consolidated Coal Mining Co	Feb.	14	1882	625	"
Freeborn Consolidated Coal Mining Co. (By-laws)	Feb.	24	1882	20	G
Fergus Falls Telephone Exchange Co	March	10	1882	70	"
Fergus Asbestos Stone Co	March	22	1882	105	"
Fergus Artificial Stone Co	April	10	1882	190	"
Fergus Falls Fuel Co	May	2	1882	267	"
Fergus Falls Paper Mills Co	June	8	1882	400	"
First German American School District of the German Evang. Luth. St. Johannes Church	June	17	1882	482	"
Franklin Building Society of St. Paul (amendment)	Nov.	10	1882	40	H
German Association of Minnesota	Aug.	3	1858	Original.	
Globe Mills Co., New Ulm	Sept.	21	1858	1	A
German Lutheran Church of Brownsville	Sept.	4	1865	Original.	
Glenwood Hydraulic Co	March	1	1867	30	B
Groveland Seminary	Nov.	9	1868	151	"
German Roman Catholic St. Joseph Association for Mutual Assistance	March	3	1869	170	"
Germania Lodge No. 18, I. O. of O. F	March	22	1869	174	"
Great Western Mining Co. of Pennsylvania.	Jan.	26	1870	275	"
German Free Congregation of New Ulm	Feb.	21	1870	286	"
Grange Benevolent Life and Accident Ass'n.	Seps.	19	1873	741	"
Goodhue County Council Patrons of Husbandry	Jan.	21	1874	768	"
German Roman Catholic St. Joseph Benevolent Society of Wabasha	March	5	1874	24	C
Grangers' Warehouse Co., of Lake City	May	1	1874	61	"
Garden Valley Agricultural and Driving Park Association	June	10	1874	89	"

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Gemuethlichkeit Society	June 22	1874	99	C
Goodhue County Savings Bank	Oct. 7	1874	170	"
German Benevolent Society of St. Peter	Nov. 30	174	186	"
Grand Grove of the U. A. O. of D., of the State of Minnesota	March 18	1875	253	"
German Christian Benevolont Society of St. Paul	April 2	1875	262	"
German American Hail Insurance Co., of St. Paul	April 10	1875	266	"
German American Hail Insurance Company, (amended articles)	Nov. 19	1875	340	"
German American Hail Insurance Co.	March 17	1876	383	"
German Lodge No. 3, Order of der Hermau Soehne	Aug. 25	1876	486	"
German Catholic St. Boniface School Society	March 13	1877	565	"
German Printing Co	June 29	1877	40	D
Grand Lodge of Minnesota of the Independent Order of Good Templars	June 10	1878	342	"
Grantsburgh, Rush City & St Cloud R.R. Co	Nov. 29	1878	425	"
Grant & Dakota Railroad Co	Jan. 4	1879	453	"
Grand Lodge of the Sons of Herman	March 27	1879	554	"
Grand Lodge of the A. O. U. W	April 26	1879	562	"
Germania Lodge No. 4, K. of P.	Aug. 1	1879	28	E
German Evangelical Luthern Congregation, of Owatonna, Minn	May 8	1880	297	"
Glenwood Academy	June 3	1880	363	"
German Evangelical Lutheran St.Johns Congregation	Aug. 4	1880	448	"
German Roman Catholic St. Peter Benevolent Society of Carver County	Oct. 2	1880	479	"
Great Union Band of St. Paul	March 5	1881	12	F
German Evangelical Luthern St.John Church (constitution)	March 24	1881	88	"
Germania Kranken Unterstutzungs Verein	July 21	1881	289	"
Glencoe Elevator Co	Aug. 26	1881	343	"
German United Evang. St.Paul Congregation	Dec. 24	1881	543	"
German Roman Catholic St. John's Baptiste Benevolent Society of Shakopee	March 1	1882	33	G
German Scandinavian Hail and Storm Insurance Co. of Minnesota	March 8	1882	60	"
German American Bank of Hastings	March 25	1882	114	"
German Catholic Aid Association	April 27	1882	230	"
Guardian Angels Church, Hastings	May 8	1882	55	C C R 2
Gull River Lumber Co	June 7	1882	379	G
G. W. Van Duzen & Co	June 9	1882	406	"
Gate City Carriage Co	Nov. 10	1882	43	H
Henderson Manufacturing Co	June ..	1855	Original.	
Hastings Seminary	Dec. 24	1866	15	B
Hope Fire Engine Co. No. 1, (Hastings)	Nov. 22	1867	74	"
Home Gold and Silver Mining Co., of Wabasha, Minn	March 19	1868	113	"
House of the Good Shepherd, St. Paul	March 8	1869	172	"
Hennepin County Eclectic Medical Society	March 31	1869	179	"
Hennepin County Medical Society	May 21	1869	187	"

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Hokah Lodge No. 17, A. F. and A. M.	July 5	1870	336	B
Hennepin County Savings Bank	Aug 3	1870	345	“
Hope Royal Arch Chapter 12 of Royal Arch Masons	April 4	1873	678	“
Hubbard Harvester Co.	March 20	1874	36	C
Homestead Building Society	May 14	1874	52	“
Hastings Manufacturing Co	June 12	1874	92	“
Hennepin County Catholic Building and Loan Association	Aug. 19	1874	132	‘ ‘
Hokah Library Association	April 21	1875	270	“
Houston, Hesper & Southwestern R. R. Co.	March 11	1876	350	“
Herman Lodge No. 2, Order der Herman Soehne	May 10	1876	424	“
Holy Trinity Church of New Ulm	May 5	1877	18	D
Hebron Grange No.150, Building Association	July 10	1877	53	“
Home Building Society	Aug. 27	1877	86	“
Houges Norwegian Evangelical Lutheran Synod in America	Feb. 27	1878	257	“
Historical Society of Minnesota	Jan. 26	1878	378	O L & C
Hermion Lodge No. 18, Knights of Pythias.	April 30	1878	292	D
Holy Name of Jesus Church of Hennepin	July 11	1878	81	CR
High Forest Seminary	Nov. 22	1879	74	E
Hermion State Society of State University	Dec. 30	1879	119	“
Hennepin County Barrel Co	April 14	1880	251	“
Hennepin County Barrel Co., (certificate)	April 14	1880	255	“
Hawkey Mining Co	May 24	1880	341	“
Hall & Dann Barrel Co.	June 12	1880	370	“
Hastings Union Industrial Association	June 19	1880	388	“
Henderson Philanthropic Club	June 6	1880	140	“
Hauser Malting Co	July 14	1880	411	“
Hawkey Mining Co., (By-Laws)	Oct. 2	1880	482	“
Hall & Dann Barrel Co., (certificate)	Aug. 3	1880	29	2 OL &
Homeopathic Hospital of Stillwater	March 23	1881	69	F
Hennepin County Barrel Co.. (amendment)	April 15	1881	160	“
Homeopathic Hospital of Minneapolis	May 17	1881	218	“
Hawkey Mining Co., (amendment)	Aug. 10	1881	318	“
Hall & Dann Barrel Co., (amendment)	Nov. 29	1881	480	“
H. M. Smyth Printing Co	Dec. 19	1881	514	“
Hutchinson Ditcher Co	July 21	1882	477	G
Herzog Manufacturing Co	Sept. 22	1882	580	“
Holy Trinity Church, New Ulm	Oct 18	1882	105	2, C C R
Hotel St. Louis	Nov. 22	1882	64	H
Iowa & Minn. Railway Construction Co.	Oct. 10	1866	10	B
Ida Grange No 395	July 3	1877	47	D
Immaculate Conception Church of Faribault	Aug. 3	1877	60	“
Island Power Co	Dec. 2	1878	430	“
Immanual Church of the German Evangelical Lutheran Congregation of the Unaltered Augsburg Confession of Town of Yellowhawk, Lac Qui Parle County	Nov. 29	1880	520	E
Iowa Central & Northwestern Railway Co	Nov. 3	1880	529	“
ImmaculateConceptionChurch at Minneapolis	Jan. 14	1882	1	C C R 2
Immaculate Conception Church, Highland, Wabasha, Minn	Jan. 14	1882	13	“

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Ida Grange No. 395, of the Patrons of Husbandry	April	11,	1882	197	G
Immanuel Church of the Evang. Lutheran Cong. of the Unalt. Augsburg Conf., Friberg	June	6	1882	371	"
Immaculate Conception Church, Watertown	Nov.	28	1882	123	C C R 2
Jordan Land and Building Co	Nov.	15	1872	601	B
Jordan Turnverein	June	22	1877	43	D
Journeymen Tailors' Self Protecting Society	Oct.	3	1881	396	F
Journal Printing Co	Dec.	7	1881	498	"
Japanese Martyrs Church at Leavenworth	Jan.	14	1882	9	C C R
J. I. Case Plow Co	Feb.	21	1882	15	G
J. G. Freeman Co	April	8	1882	182	"
James T. Elwell Manufacturing Co	May	16	1882	317	"
James T. Elwell Mnft. Co., (certificate)	Sept.	7	1882	554	"
Jefferson Silver Mining Co	Oct.	26	1882	687	"
Jefferson Silver Mining Co., (By-Laws)	Oct.	26	1882	689	"
Kasson Manufacturing Co	Sept.	4	1868	142	B
Komoko & St. Louis River Railway	Nov.	29	1871	482	"
Knife Falls Boom Corporation	Jan.	5	1872	492	"
Kellogg Flouring Mill Co	May	9	1874	66	"
Kellogg Flouring Mill Co., (certificate)	May	21	1874	214	O L & C
Key Stone Lodge No. 94	May	12	1875	287	B
Kasson & Red Wing Telegraph Co	May	17	1875	291	"
Kandiyohi Co. Farmers' Elevator Association	Jan.	11	1879	460	D
Knights of Pythias Hall Association	May	27	1879	614	"
Knife Falls Lumber Co	Jan.	3	1880	126	E
Knife Falls Lumber Co., (certificate)	Jan.	30	1880	171	"
Knife Falls Lumber Co., (amendment)	Feb.	10	1882	620	F
Knife Falls Lumber Co., (amendment)	Nov.	4	1882	25	H
Knife Falls Lumber Co., (certificate)	Nov.	15	1882	51	"
Lake Superior and Red River Railroad Co	March	24	1860	18	A
Lake Superior and Crow Wing Air Line R. R. Co	Jan.	11	1861	Original.	
Lake Superior and Mississippi Railroad Co	May	13	1864	Original.	
Lake Superior and Iron Mountain R. R. Co.	Aug.	8	1864	Original.	
Library Association of Cottage Grove and vicinity	Dec.	7	1864	Original.	
Lutheran and Reformed St. Paul's Church Association of New Ulm	Aug.	25	1865	Original.	
LaCrescent, Rochester & Yankton Railroad Co	Jan.	17	1866	Original.	
Lake Pepin & Omaha Railroad Co	Feb.	20	1867	34	B
Liederkranz and Turnverein of Red Wing	Feb.	26	1868	100	"
Lake Superior, St. Anthony Falls and Minnesota River Air Line Railroad Co	Nov.	21	1868	156	"
Lake Superior and Vermilion Lake R. R. Co	March	26	1869	176	"
L'Etoile du Norde Lodge No. 23, I. O. O. F.	Jan.	11	1870	267	"
Ladies' Relief Association of St. Paul	April	30	1870	316	"
Litchfield Hook & Ladder Co	Feb.	7	1871	397	"
Le Sueur and Owatonna Railway Co	Feb.	14	1871	402	"
Lake Superior and Rainy Lake Railway Co	Dec.	11	1872	609	"
Lumbermen's Transportation Co	Jan.	9	1873	626	"
Le Roy Union Grange Co.	Feb.	19	1874	14	C
Ladies' Flora Club and Library Association				57	"
of Austin	April	29	1874	57	"

NAME OF INCORPORATION.	WHEN FILED.		Page.	Book.
	Month.	Year.		
Lyle Elevator Co	June 5	1874	87	C
Litchfield Library Association	Sept. 16	1875	324	"
Lake City Lumber Co	Sept. 10	1875	320	"
Langdon Butter and Cheese Factory	Jan. 26	1876	361	"
Lyle Elevator and Storehouse Co., (certificate)	June 10	1876	309	O L & C
Le Sueur Center Land Co	Aug. 7	1876	473	C
Le Sueur Elevator Co	Aug. 23	1876	483	"
Litchfield Fire Co	Feb. 8	1877	554	"
LaGrange Mill Co., (certificate)	Feb. 24	1877	332	O L & C
Lake City Ferry and Transportation Co	March 24	1877	582	C
Lurline Boat Club of Minneapolis	July 14	1877	56	D
Lily Lake Driving Park Association	Aug. 24	1877	83	"
L'Union Catholique Francaise	Dec. 31	1877	179	"
Litchfield Brass Band	Jan. 23	1878	207	"
Lyndale Railway Co	June 21	1878	363	"
Little Falls and Dakota Railroad Co	Feb. 10	1879	507	"
La Crosse and Omaha Railroad Co	May 19	1879	609	"
Liberty Barrel Co. of Minneapolis	June 3	1879	624	"
Lake Superior and Red River Valley R.R. Co	Dec. 23	1879	115	E
Lake Superior Elevator Co	Jan. 13	1880	134	"
Library Hall Association of Murdock	Jan. 16	1880	150	"
Little Falls and Dakota R. R. Co.	June 28	1880	409	"
Lincoln Silver Mining Co	Oct. 26	1880	491	"
Luciliburgia of St. Paul	Dec. 9	1880	536	"
Lake Park and Crookston Air Line R. R. Co	Jan. 19	1881	565	"
Lyndale Construction Co	March 28	1881	75	F
Little Falls and Dakota Railroad Co., (amendment.)	July 11	1881	275	"
Lake City Flouring Mill Co	July 16	1881	282	"
Lake Superior and Dakota Railway Co	Aug. 8	1881	314	"
Lake City Flouring Mill Co., (certificate)	Aug. 17	1881	325	"
Lake Superior Elevator Co., (amendment)	Aug. 23	1881	340	"
La Cross and Southwestern Railway Co	Oct. 7	1881	399	"
Lake City Flouring Mill Co., (amendment)	Jan. 30	1882	600	"
Lugar Furniture Co	March 8	1882	57	G
Lake Pleasant Farmers Club	March 18	1882	91	"
Lutheran Publication Socity of the Northwest	March 28	1882	117	"
Living Arch Chapter No. 28 of Worthington	March 29	1882	156	"
La Du-King Manufacturing Co	April 3	1882	168	"
Lumberman Printing Co	June 1	1882	366	"
Litchfield Creamery Association	June 6	1882	383	"
Litchfield Creamery Association, (certificate)	July 5	1882	446	"
Lake City Flouring Mill Co., (amendment)	Oct. 6	1882	614	"
Litchfield Creamery Association, (certificate)	Oct. 26	1882	679	"
Lorkie Manufacturing Co	Nov. 4	1882	28	H
Ladies Home Literary Society	Nov. 23	1882	76	"
Minnesota Baptist State Convention	Jan. 20	1860	11	A
Minnesota Telegraph Co	Feb. 22	1860	21	"
Minneapolis Athenæum	March 2	1860	26	"
Minnesota Central Railroad Co	Oct. 9	1860	31	"
Minneapolis and Red River Railroad Co	Jan. 15	1861	Original.	
Minnesota Seminary	Sept. 20	1861	Original.	
Minneapolis and St. Cloud Railroad Co	Feb. 20	1864	49	A
Medina Free Men's Club	Aug. 13	1864	Original.	

NAME OF INCORPORATION.	WHEN FILED.		Page.	Page.
	Month.	Year.		
Macoman Mining Co.	Sept. 9	1864	Origi	nal.
Monitor Mining Co.	Sept. 9	1864	Origi	nal.
Minneapolis Harmonia	Aug. 4	1865	Origi	nal.
Minnesota Female College	Sept. 27	1865	Origi	nal.
Minnesota Gold Minning Co.	Nov. 22	1865	Origi	nal.
Minnesota Gold Minning Com.	Dec. 5	1865	Origi	nal
Mantorville and Winona and St. Peter Raliroad Co.	Jan. 24	1866	Origi	nal.
Minneapolis Turnverein	June 22	1866	Origi	nal.
Minnesota Plastic Slate Roofing Co	Aug. 19	1866	4	B
Misaba Gold and Silver Mining Co.	Aug. 29	1866	6	"
Minnesota Tripoli Co.	Sept. 2	1866	8	"
Monongalia County Agricultural and Mineral Society	Jan. 18	1867	16	"
Minnesota State Homœopathic Institute	Feb. 15	1867	33	"
Meeker County Agricultural Society	March 9	1867	44	"
Monongalia County Mutual Insurance Co.	April 26	1867	54	"
Minnesota Savings Association (St. Paul)	May 22	1867	58	"
McGregor Western Railway Co.	June 8	1867	59	"
Minnesota Granite Co.	Nov. 27	1867	76	"
Minneapolis Horse Railroad Co.	Jan. 15	1868	84	"
Minnesota State Agricultural Society	Feb. 6	1868	92	"
Minnesota Land Co, Amsterdam	March 14	1868	108	"
Minnesota Keath and Provident Co.	June 1	1868	127	"
Minnesota Iron Works, Minneapolis	July 22	1868	137	"
Mantorville Railway Co.	Aug. 4	1868	140	"
Mississippi River Slack Water Navigation Co	Jan. 25	1869	166	"
Minnesota and Iowa Railroad Co.	May 25	1869	189	"
Minnesota State Medical Society	June 10	1869	200	"
Minnesota Railway Construction Co.	June 26	1869	208	"
Minnesota State Eclectic Medical Society	Aug. 30	1869	232	"
Minnesota State Missionary Association of Spiritualists	Oct. 23	1869	250	"
Medical and Surgical Society of Le Sueur County	Nov. 24	1869	248	"
Mutual Benefit Association of St. Anthony	Dec. 7	1869	261	"
Minneapolis Gas Light Co.	March 1	1870	294	"
Minnesota Canal and Habor Improvement Co	March 8	1870	300	"
Minneapolis Cotton Manufacturing Co.	March 31	1870	312	"
Minnesota Conference of the Evangelical Association of North America	April 30	1870	314	"
Mankato Melo Dramatic Association	May 7	1870	320	"
Minnesota Odd Fellows Mutual Benefit Sc'y	July 20	1870	340	"
Minnesota Linseed Oil Co.	Sept. 19	1870	352	"
McLeod County Cheese Manufacturing Association	Dec. 15	1870	367	"
Minnesota Farmers' Mutual Fire Insurance Association	Feb. 4	1871	388	"
Minnesota Farmers' Mutual Insurance Association	Feb. 10	1871	399	"
Mankato Turn Verein	Feb. 16	1871	404	"
Minneapolis Agricultural and Mechanical Associatio	June 30	1871	445	"
Monitor Plow Works	Feb. 1	1872	501	"

NAME OF INCORPORATION.	WHEN FILED.		Page.	Book.
	Month.	Year.		
Minneapolis, Rochester and La Crosse Railway Co	Feb. 3	1872	504	B
Minnesota Log Driving Co	Feb. 21	1872	517	"
Mankato Linseed Oil and Tow Co	July 3	1872	554	"
Minnesota Soap Co	Aug. 28	1872	576	"
Moscow Ladies' Aid Society	Feb. 15	1873	642	"
Mankato Gas Light Co., (certificate of purpose of corporation)	March 24	1873	666	"
Minnesota Eye and Ear Institute	March 29	1873	668	"
Minneapolis Harvester Co	June 13	1873	692	"
Minneapolis Street Railway Co.	June 24	1873	695	"
Monitor Plow Works, (increase of stock)	Dec. 30	1873	618	"
Minnesota Boat Club, of St. Paul	Dec. 19	1873	759	"
Minneapolis Car Coupling Co	Dec. 30	1872	761	"
Milwaukee and Nashua Railway Co	July 3	1873	703	"
Mankato Furniture Co., (certificate of formation)	Aug. 5	1873	185	O L & C
Mankato Manfacturing Co., (certificate of formation)	Aug 7	1873	187	"
Minnesota Masonic Relief Association	Aug. 13	1873	716	B
Missionary Society of the Minnesota Conference of the Evangelical Association of N.A	Aug. 14	1873	718	"
Minneapolis M. L. Association	Aug. 21	1873	724	"
Minnesota and La Crosse Plank Road Co	Aug. 21	1873	727	"
Minnesota Middlings Purifier Co	Aug. 23	1873	729	"
Mankato Driving Park Association	Sept. 11	1873	736	"
Mankato Brick Co., (certificate)	Sept. 17	1873	191	O L & C
Minnesota Grove No. 1, U. A. O. D	Nov. 6	1873	754	B
Minnesota State Grange of the Patrons of Husbandry	Jan. 30	1874	772	"
Minneapolis Mutual Benefit Building and Loan Association	Jan. 31	1874	778	"
Midway Improvement Co.,	Feb. 3	1874	787	"
Mankato Furniture Co., (certificate)	Jan. 17	1874	195	O L & C
Mankato Furniture Co., (certificate)	Jan. 31	1874	198	"
Mankato Woolen Muft. Co., (amendment)	April 7	1874	207	"
Muskado Land Improvement Association	Feb. 12	1874	3	C
Minnesota Emigration Co	Feb. 14	1874	6	"
Minnesota Society for the Prevention of Cruelty to Animals	Feb. 17	1874	8	"
Minnesota Magdalen Society	Feb. 18	1874	10	"
Moorhead Manuf. Co.	March 20	1874	34	"
Minnesota Tool Co	April 27	1874	50	"
Minnesota Cranberry Assocation	May 14	1874	78	"
Minnesota Bed Spring Manuf. Co	June 1	1874	85	"
Minneapolis Manuf. Co	June 15	1874	94	"
Mankato Academy of Music Co	July 24	1874	109	"
Minnesata and Great Eastern Transportation Co	July 28	1874	115	"
Mechanics' and Workingmen's Loan and Building Association of Minneapolis	Aug. 31	1874	140	"
Minnesota Wood Carbolizing and Construction Co	Sept. 24	1874	155	"
Minnetonka Mill Co	Oct. 3	1874	162	"

NAME OF INCORPORATION.	WHEN FILED.		Page.	Book.
	Month.	Year.		
Mapleton Warehouse Co	Oct. 31	1874	178	C
Medina Mill Co	Jan. 6	1875	205	“
Merchants' International Steamboat Line	Jan. 30	1875	216	“
Minnesota Temperance Union	Feb. 4	1875	219	“
Minnesota Thal Bote Co	Feb. 17	1876	236	“
Minnesota State Agricultural Society	Feb. 18	1875	239	“
Minnesota Farmers' Mutual Fire Insurance Association	Feb. 19	1875	242	“
Minneapolis, St. Paul and Iowa Railway Co.	March 25	1875	259	“
Mower County Agricultural Society	April 8	1875	264	“
Manhattan Marble Co., (certificate)	May 11	1875	280	O L & C
Masonic Hall Building Association	June 21	1875	300	C
Minnesota Academy of Natural Sciences	Sept. 14	1875	321	“
Morristown Mill Co	Oct. 30	1875	333	“
Meeker County Agricultural Society	Dec. 8	1875	345	“
Minnesota Manufactnring Company	Dec. 15	1875	348	“
Minnesota Midland Railroad Company	Jan. 15	1876	358	“
Minnesota Farmers' Mutual Fire Insurance Association	Feb. 5	1876	362	“
Minnieska, Plainview and Zumbro Valley R. R. Co	Feb. 8	1876	381	“
Mazeppa Mills Co., (certificate)	Feb. 10	1876	368	“
Minnesota Academy of Natural Science	March 31	1876	299	O L & C
Minnesota Southwestern Railroad Co	March 31	1876	391	C
Minneapolis Lumber Co	April 11	1876	407	“
Minnesota Knights of Pythias	June 13	1876	437	“
Minnesota Valley Railroad Co	July 8	1876	462	“
Minneapolis Harvester Works	Aug. 14	1876	476	“
Minneapolis Harvester Works, (certificate)	Aug. 19	1876	317	O L & C
Minneapolis Millers' Association	Aug. 28	1876	489	C
Mapleton Warehouse Co	Sept. 21	1876	501	“
Minnesota State Forestry Association	Nov. 24	1876	523	“
Marco Bozzaris Grove No. 10, U. A. O. of D.	Dec. 1	1876	528	“
Mississippi Road, Bridge and Ferry Co	Feb. 17	1877	559	“
Minnesota Military Relief Association	March 1	1877	562	“
Minnesota Colonization Co	March 10	1877	601	“
Minneapolis School of Medicine	March 21	1877	573	“
Martin County Railway Co	March 31	1877	588	“
Minnesota Historical Society, (certificate)	May 22	1877	347	O. L & C
Minneapolis Tribune Co	June 13	1877	38	D
Minnesota Christian Missionary Convention	Sept. 18	1877	109	“
Minneapolis Mining and Milling Co	Sept. 28	1877	111	“
Mutual Life Insurance Association of the German Roman Catholic Benevolent So'cy.	Jan. 17	1878	196	“
Minnesota Manufacturing Co., (resolution)	Jan. 23	1878	379	O L & C
Minneapolis Harvester Works	May 1	1878	416	“
Minnesota Colonization Co., (amendment)	May 15	1878	420	“
Mutual Life Insurance Association of the German Roman Catholic Benevolent Societies of the State of Minnesota	Jan. 22	1878	211	D
Minneapolis and Northwestern Railroad Co.	Feb. 5	1878	226	“
Minnesota Northern Railroad Co	Feb. 5	1878	229	“
Murray County Agricultural Society	March 4	1878	266	“
Minneapolis Orchestral Union	March 21	1878	274	“

NAME ON INCORPORATION.	WHEN FILED.			Page.	Book.
	Month.		Year.		
Masonic Mutual Aid Association	April	1	1878	277	D
Minneapolis Harvester Works(amending and reorganization)	May	1	1878	296	"
Mankato Mill Co	May	8	1878	307	"
Minnesota Iron and Steel Fence Co	May	29	1878	319	"
Meriden Mill Co	May	31	1878	322	"
Mechanics' Building Society	June	5	1878	330	"
Minneapolis Paper Grain Binding Co	June	12	1878	349	"
Minneapolis Eastern Railroad Co	June	17	1878	361	"
Minneapolis Belt Railway Co	June	26	1878	366	"
Mississippi Valley Industrial Association	July	19	1878	374	"
Minneapolis, St. Cloud and Sauk Rapids Railroad Co	Aug.	6	1878	377	"
Murdock, Van Norman & Co	Sept.	1	1878	390	"
Minneapolis Paper Grain Binder Co	Oct.	17	1878	403	"
Minneapolis Paper Grain Binder Co., (dissolved)	Sept.	28	1878	398	"
Most Holy Trinity Church of McLeod County	Nov.	22	1878	113	C R
Minneapolis and St. Paul Railway Co	Dec.	9	1878	435	D
Mississippi Boom Co	Dec.	24	1878	456	"
Minnesota Paper Co	Jan.	21	1879	467	"
Minneapolis and Northwestern Railroad Co., (amended articles)	Jan.	21	1879	470	"
Minneapolis Eastern Railroad Co	Jan.	29	1879	496	"
Minnesota Western Air Line Co	March	3	1879	530	"
Minnesota Scandinavian Relief Association	Feb.	28	1879	534	"
Minnesota and Dakota Northern Railroad Co	March	4	1879	538	"
Minnesota Amber Cane Refining Co., (certificate)	April	25	1879	569	"
Mankato Linseed Oil and Tow Co., (amended articles)	May	15	1879	573	"
Minnesota Odd Fellows Mutual Benefit Society	May	8	1879	585	"
Mankato and St. Cloud Railroad Co	March	7	1879	601	"
Minneapolis Lodge No. 1, Knights of Pythias	May	27	1879	620	"
Minnesota and Black Hills Railroad Co	June	7	1879	1	E
Minnesota Real Estate Agency	June	16	1879	5	"
Minneapolis Elevator Co.	June	17	1879	9	"
Minnesota Land and Farming Co	Aug.	9	1879	24	"
Minnesota Widows and Orphans Protection Association	Nov.	20	1879	71	"
Minneapolis Grain Binder Co	Nov.	2	1879	77	"
Monitor Plow Works (amended articles)	Feb.	11	1879	492	O L & C
Minneapolis Harvester Works (proceedings)	March	19	1879	508	"
Minnesota Boat Club (amendment	June	21	1879	539	"
Monitor Plow Works (amendment)	Feb.	5	1880	173	E
Minnehaha Lodge No. 6, Independent Order of Good Templars	Feb.	24	1880	177	"
Minneapolis and Lake Park Railway Co	Feb.	24	1880	181	"
Minneapolis, Shakopee & Minnesota Valley .Narrow Gauge Railroad Co	Feb.	13	1880	187	"
Minnesota Printing Co	Feb.	21	1880	202	"
Minneapolis Millers' Association (amendment	March	8	1880	205	"

NAME OF INCORPORATION.	WHEN FILED.		Page.	Book.
	Month.	Year.		
Minneapolis Publishing and News Co......	April 27	1880	263	E
Minneapolis Free Dispensary..............	April 27	1880	273	"
Minneapolis Elevator Co., (amendments)...	April 27	1880	276	"
Minnesota Brick and Construction Co.......	April 3	1880	294	"
Meeker County Elevator Co................	May 18	1880	327	"
Masonic Building Association of Wabasha..	May 31	1880	360	"
Minneapolis Female Academy of the Holy Angels	June 15	1880	373	"
Minneapolis & Northwestern Railroad Co. (amendment)........................	July 16	1880	418	" "
Minneapolis Horse Ry. Co. (re-filed)..........	July 31	1880	437	"
Minneapolis Street Ry. Co. (amendment)...	Sept. 14	1880	462	"
Minnesota Academy of Natural Sciences (amendment)............................	Oct. 21	1880	485	"
Minnesota Type Foundry Co..............	Dec. 1	1880	527	"
Minnesota Northern R. R. Co. (amendment)	Jan. 4	1881	556	"
Mankato Building and Loan Association...	Feb. 12	1881	610	"
Minneapolis, Lyndale & Minnetonka Ry. Co. (amendment to Lyndale Ry. Co)	Feb. 9	1881	603	"
Minneapolis, Hutchinson & Southwestern Ry. Co......	March 8	1881	15	F
Millers and Manufacturers Mutual Insurance Co. of Minnesota......................	March 12	1881	26	"
Moorhead. McCauleyville & Breckenridge Ry. Co................................ ..	March 19	1881	54	"
Minnesota Cooks, Pastry Cooks & Confectioners Cosmopolitan Association.........	March 21	1881	60	"
Minnetonka Grange Association...........	March 22	1881	83	"
Moorhead Driving Park Association........	March 31	1881	103	"
Mountain King Mining Co................	April 2	1881	115	"
Mazeppa Mills Co. (amendment)...........	April 4	1881	120	"
Mountain King Mining Co. (by-laws)......	April 8	1881	143	"
Minnesota Northern R. R. Co. (amendment)	April 18	1881	167	"
Minnesota Stats Tidning Co...............	April 23	1881	170	"
Minnesota Electric Light and Electric Motive Power Co..........................	June 14	1881	257	"
Minnesota Free Baptist Yearly Meeting Missionary Society...........	June 25	1881	272	"
Minnesota Loan and Building Association..	July 12	1881	279	"
Masonic Hall Building Association (amendment..................................	July 21	1881	288	'
Mutual Union Telegraph Co...............	Aug. 5	1881	307	"
Moorhead Loan and Building Association...	Aug. 17	1881	322	"
Minneapolis Harvester Works......	Sept. 2	1881	365	"
Minneapolis Harvester Works (certificate)..	Sept. 2	1881	370	"
Minneapolis Mutual Benefit Building and Loan Association (amendment)..........	Sept. 12	1881	378	"
Manitou Island Land and Improvement Co.	Aug. 30	1881	359	"
Minnesota College Hospital...............	Oct. 19	1881	425	"
Minneapolis Gas Light Co. (amendment)...	Oct. 25	1881	432	'
Minneapolis. Perham & Manitoba Air Line Railroad Co..................	Nov. 7	1881	452	"
Minnesota Lumber Co....................	Nov. 9	1881	456	"
Minneapolis Strawboard Co...............	Nov. 21	1881	465	"

NAME OF INCORPORATION.	WHEN FILED.		Page.	Book.
	Month.	Year.		
Minnesota Colonization Agricultural and Manufacturing Co	Nov. 26	1881	471	F
Minneapolis Union Railway Co	Dec. 1	1881	489	"
Minnesota Coffee and Spice Co	Dec. 6	1881	495	"
Moorhead General Hospital	Dec. 15	1881	510	"
Minnesota Rendering Co	Dec. 21	1881	521	"
Merrill Discovery Co	Jan. 12	1882	569	"
Merrill Discovery Co. (by-laws)	Jan. 12	1882	571	"
Minnesota and Dakota Elevator Co	Jan. 16	1882	576	"
Minneapolis Harvester Works (certificate)	Jan. 19	1882	584	"
Moorhead Publishing Co	Feb. 16	1882	631	"
Monitor Plow Works (amendment)	Feb. 17	1882	5	G
Minneapolis Rubber Co	March 4	1882	47	"
Minnesota State Dairymen's Association	March 4	1882	50	"
Minnesota Mutual Accident and Railway Relief Association	March 11	1882	78	"
Minnesota and Montana Land and Improvement Co	March 24	1882	111	"
Moorhead Foundry, Car and Agricultural Works	April 13	1882	202	"
Minneapolis Syndicate	April 28	1882	245	"
Montana Land Improvement Co	May 2	1882	260	"
Moorhead Real Estate Improvement Co	May 3	1882	273	"
Minnesota Central Construction Co	May 23	1882	332	"
Minneapolis, St. Paul and Sea Coast Railway Co	May 31	1882	354	"
Mesaba Iron Co	June 14	1882	421	"
Mille Lacs Lumber Co	July 8	1882	448	"
Minnetonka Steamboat Co	July 8	1882	451	"
Mesaba Iron Co. (by-laws)	July 15	1882	463	"
Minneapolis & St. Paul Street Railway Co	July 25	1882	481	"
Minnesota Brush Electric Co. (change of name)	Sept. 26	1882	585	"
Minnesota Farmer Printing Co	Oct. 12	1882	632	"
Mutual Aid Society of the Minnesota Annual Conference of the Methodist Episcopal Church	Oct. 17	1882	642	"
Mutual Aid Society of the Minnesota Annual Conference of the Methodist Episcopal Church	Oct. 17	1882	643	"
Mountain Lake Tow Co. (certificate)	Nov. 4	1882	31	H
Mille Lac Improvement Co	Nov. 4	1882	32	"
Minnesota Iron Co	Nov. 14	1882	46	"
Minnesota Conference of the Wesleyan Methodist Connection of America	Nov. 16	1882	54	"
Minnesota Tribune Co	Nov. 21	1882	60	"
Minnesota Farming and Lumber Association	Nov. 23	1882	67	"
Nicollet Company	Jan. 25	1857	Origi	nal.
North Shore Mining Co	Aug. 13	1863	43	A
(Withdrawn and re-filed	Nov. 16	1863	.....	....
Northwestern Gold and Silver Mining Co. of Minnesota	Jan. 5	1865	Origi	nal.
North Star Gold and Silver Mining Co	Feb. 20	1866	Origi	nal.
Northfield College	Dec. 17	1866	13	B

NAME OF INCORPORATION.	WHEN FILED.		Page.	Book.
	Month.	Year.		
New Ulm Turnverein (copy of lost articles filed by decree of court)........	Aug. 20	1869	224	B
Northwestern Land Association...........	Feb. 23	1870	290	“
New Ulm Transportation Co...............	May 14	1870	325	“
Northwestern Construction Co.......... ...	June 25	1870	332	“
New Ulm Printing Co....................	Aug. 18	1870	346	“
Northwestern Cotton Manufacturing Co ...	Sept. 13	1870	350	“
Northwestern Colonization Co.............	Dec. 6	1870	362	“
New Ulm, Redwood and Big Stone Lake Railway Co...........................	Jan. 29	1871	378	“
“Norden”......	April 4	1871	420	“
New Ulm Academy.............	April 24	1871	426	“
Norden Commercial Association............	Nov. 17	1871	478	“
Nordiska Forbund........	March 5	1872	526	“
Nicollet County Agricultural Society...	July 3	1872	619	“
Norwegian, Danish Evangelical Lutheran Augsburg Seminary.....................	Aug. 24	1872	573	“
Northwestern Tip Co......................	March 15	1872	661	“
North Star Boot and Shoe Co..............	Aug. 4	1873	705	“
Northwestern Produce Co.................	Oct. 29	1873	747	“
Nicollet Mutual Benefit Building and Loan Association..........................	May 28	1874	81	C
Northwestern Manufacturing Co..........	Aug. 19	1874	130	“
New Ulm Turnverein (alteration of articles)	Oct. 5	1874	167	“
Nordiske Forbund...............	Feb. 16	1875	233	“
North Star Manufacturing Co. (certificate)..	Dec. 31	1875	291	O L & C
Northwestern Engine Co....	Jan. 11	1876	355	C
Noras Harpe..............................	Nov. 30	1875	341	“
North Star Building Society...............	Nov. 7	1876	516	“
North Shore Railway Co......	Jan. 11	1877	535	“
Norwegian Library Association...........	April 3	1877	294	“
Northwestern Globe Gas Light Co..........	April 23	1877	3	D
Northwestern Globe Gas Light Co. (certificate)....................	May 7	1877	23	“
Northwestern Fuel Co.....................	May 24	1877	27	“
Northern R. R. Co........................	Sept. 3	1877	92	“
North Star Barrel Co.....................	Nov. 23	1877	142	“
Northfield Agricultural and Industrial Association	June 9	1876	434	C
North Shore Consolidated Silver Mining Co.	Nov. 1	1878	414	D
Nativity B. V. M. Church of Cleveland, Le Sueur County........................	April 3	1878	29	CR
Northwestern Telephone Exchange Co......	Dec. 18	1878	441	D
Northwestern Endowment and Legacy Association........................	Jan. 14	1879	463	“
Northwestern Park Association....	Feb. 11	1879	512	“
New Market Town Church of St. Nicholas..	March 10	1879	129	CR
Northwestern Barrel Co............	June 21	1879	14	E
Norwegan Evangelical Luthern Dale Congregation..............	Oct. 22	1879	67	“
New Ulm Sugar Manufacturing Co. (certificate)................................	June 20	1879	542	O L & C
North Star Building Society (amended articles)......	Nov. 13	1879	92	

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New Ulm Silver Cornet Band	March	25	1880	219	E
Northwestern Relief Association	April	30	1880	279	"
Northwestern Relief Association (amendment)	May	17	1880	339	"
North Star Iron Works Co	Aug.	6	1880	426	"
Northwestern Free Elevator Association	Aug.	4	1880	443	"
North Branch Trotting Park Association	Aug.	18	1880	458	"
N. W. Relief Association (amendment)	Jan.	14	1881	558	"
Northfield Gymnasium	March	1	1881	1	F
"Nordvesten" Publishing Co	April	25	1881	174	"
North Star Woolen Mill Co	April	30	1881	188	"
Northwestern Fuel Co. (amendment)	May	19	1881	225	"
Northwestern Grain Dealers Association	July	12	1881	276	"
North Star Barrel Co. (amendment)	Nov.	21	1881	463	"
Northwestern Stove Works	Feb.	9	1882	617	"
Northwestern Elevator Co	Feb.	16	1882	1	G
Northwestern Grain Dealers Association (amendment)	Feb.	17	1882	7	"
Northwestern Pacific Coal Co	Feb.	28	1882	28	"
Northwestern Relief Association (amendment)	March	7	1882	54	"
New Ulm Meannerchor	March	18	1882	94	"
Northwestern Elevator Co. (amendment)	March	21	1882	101	"
North Dakota Land Co	March	28	1882	147	"
Northwestern Car and Manufacturing Co (certificate)	April	1	1882	165	"
Northwestern Soap Co	April	10	1882	193	"
Northern Land Co	May	4	1882	282	"
Northwestern Manufacturing and Car Co. (certificate)	May	12	1882	291	"
Northwestern Fuel Co. (amendment)	May	13	1882	294	"
Northern Pacific Elevator Co	May	15	1882	300	"
Northwestern Casket Co	May	17	1882	319	"
Northwestern Pipe and Paving Co	May	22	1882	328	"
Northwestern Iron Co	June	2	1882	368	"
Nor Cross Farmers Elevator Co	June	8	1882	391	"
New Ulm Roller Mill Co	Sept.	9	1882	556	"
Northern Pine Land Co	Oct.	3	1882	608	"
Owatonna and State Line Railroad Co	March	19	1867	49	B
Osseo Liederkranz	Feb.	5	1869	168	"
Osseo Society of Liberalists	Oct.	30	1872	594	"
Olmsted County Union of Patrons of Husbandry	April	28	1874	56	C
Owatonna Library Association	Jan.	5	1875	203	"
Owatonna Mineral Springs Co	May	7	1875	283	"
Odd Fellows Colonization Bureau	Nov.	21	1877	148	D
Old Reliable Club	Aug.	15	1878	384	"
Osseo Turn Verein	Jan.	26	1880	161	E
Orient Chapter No. 19, R. A. M	May	14	1880	316	"
Ortonville Building Association	March	10	1881	31	F
Our Lady Church of Kildare	Jan.	11	1882	145	C C R
Oneota Boom and Mill Co	July	10	1882	454	G
Odd Fellows Building Society	Oct.	10	1882	625	"
Ohio Farming Co	Nov.	23	1882	73	H

NAME OF INCORPORATION.	WHEN FILED.			Page.	Book.
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Protestant Orphan Asylum, St. Paul	April	13	1865	Origi	nal.
Protestant Orphan Asylum, St. Paul	Sept.	18	1865	Origi	nal.
Pioneer Gold and Silver Mining Co. of Minnesota	Aug.	10	1866	1	B
Protection Hook and Ladder Co. No. 1, of Anoka	Feb.	6	1867	25	“
Premier Peat Co., St. Paul	Dec.	17	1867	80	“
Pleasant Grove Lodge No. 22 of Ancient, Free and Accepted Masons	May	15	1868	124	“
Princeton Lodge No. 100, I. O. G. T.	May	19	1869	185	“
Pine City Lumber Co.	May	6	1871	431	“
Patrons Co-operative Association of Alden, Freeborn Co	Nov.	5	1873	751	“
Plainview, Weaver and Minneiska Telegraph Co	Feb.	27	1874	18	C
Preston and Southwestern Railroad Co.	Feb.	27	1874	20	“
Patrons Warehouse Co.	July	21	1874	121	“
Penniman Homeopathic Hospital of Minneapolis	July	24	1874	113	“
Plymouth Grange No. 351, Patrons of Husbandry	Sept.	14	1874	152	“
People's Building and Loan Association	Sept.	24	1874	158	“
Pioneer Farming Co	Jan.	12	1875	209	“
Pettengill Automatic Car Coupler Co	Feb.	19	1875	241	“
Pioneer Co	March	8	1875	249	“
Pioneer Press Co	May	24	1875	292	“
Patrons' Warehouse Company of Winnebago City	July	27	1875	311	“
Peterson Mill Co	Nov.	6	1875	335	“
Patrons' Mutual Benefit Association	Feb.	11	1876	373	“
Philomathian Society of Carleton College	Feb.	18	1876	377	C
Pioneer and Press (certificate)	June	12	1876	310	O L & C
Peterson Mill Co. (amended articles)	July	24	1876	466	C
People's Building Society	Sept.	20	1876	496	“
Polar Star Mill Co. (certificate)	March	27	1877	338	O L & C
Polar Star Mill Co. (certificate)	March	27	1877	339	“
Polar Star Mill Co. (certificate)	May	3	1877	346	“
Polk City Manufacturing Co	June	9	1877	36	D
Polar Star Mill Co. (certificate)	June	9	1877	351	O L & C
Polar Star Mill Co. (certificate)	July	11	1877	354	“
Plainview Narrow Gauge Railway	Nov.	8	1877	127	D
Princeton and Anoka Railroad.	Nov.	4	1877	158	“
Plainview Railroad Co	Dec.	18	1877	161	“
Pembina Farm Co	April	11	1878	283	“
Paper Band Grain Binder Co	June	4	1878	327	“
Paper Band Grain Binder Co. (articles revoked and rescinded)	June	12	1878	348	“
Pearl Lake Park Association	June	26	1879	12	E
Pious IXth Benevolent Society of St. Paul	July	24	1879	21	“
Patrons Warehouse Co. (amendment)	Oct.	21	1879	7	2 of L&C
Pembina Farm Co	April	26	1880	282	E
Prairie Mills Co	Jan.	19	1881	562	“
Peruvian Bitters (specification)	March	10	1881	37	F
Phœnix Barrel Manufacturing Co	March	21	1881	62	“

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NAME OF INCORPORATION.	WHEN FILED.			Page.	Book.
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Phœnix Barrel Manufacturing Co. (notice of first meeting)	March	21	1881	65	F
Phœnix Barrel Manufacturing Co. (certificate)	March	21	1881	66	“
Plasterers' Protection and Benevolent Union	April	1	1881	107	“
Pray Manufacturing Co	April	13	1881	156	“
Pioneer Manufacturing Co. of Osakis	May	9	1881	195	“
Pioneer Manufacturing Co. of Osakis (amendment)	May	17	1881	217	“
Pioneer Real Estate and Building Society	June	17	1881	261	“
Polish Roman Catholic Society of Duluth	Oct.	22	1881	428	“
Pillsbury and Hulbert Elevator Co	July	17	1882	457	G
Paris Murton Co	Aug.	7	1882	503	“
Pioneer Press Co. (amendment)	Sept.	14	1882	569	“
Pelican Brick Co	Sept.	28	1882	595	“
Pelican Brick Co. (certificate)	Nov.	16	1882	52	H
Rector, Church Wardens and Vestrymen of Christ Church of Red Wing	Dec.	30	1858	8	A
Root River and Mankato Railroad Co	Feb.	24	1863	35	“
Rochester Institute	July	9	1866	Origi	nal.
Redwood Coal Co	Oct.	12	1864	Origi	nal.
Rochester Socialer Turnverein	Jan.	29	1868	91	B
Red Rock Camp Ground Association	May	1	1869	184	“
Rochester Manufacturing Co	Sept.	23	1869	233	“
Rice Lake and Zumbro River Manufacturing Co	Feb.	3	1871	386	“
Rice Lake and Zumbro River Manufacturing Co	Jan.	14	1865	Origi	nal.
Red Wing Literary Society	May	16	1871	435	B
Red Wing Seminary Association	Sept.	30	1871	467	“
Red Wing Gas Light Co	May	14	1872	544	“
Red Wing Mills (certificate)	April	18	1873	682	“
Red Wing Mills (certificate)	May	30	1873	178	O L & C
Red River Slack Water Navigation Co	June	9	1873	689	B
Red Wing Mills (certificate)	July	3	1873	181	O L & C
Red Wing Mills (certificate)	Aug.	12	1873	183	“
Red Wing Mills (certificate)	Nov.	17	1873	193	“
Rice's Point Railroad Co	Aug.	27	1873	731	B
Red Wing Hotel Co	Jan.	30	1874	776	“
Red River Transportation Co	Feb.	27	1874	16	C
Rice Co. Grange Mill Co (certificate)	May	22	1874	216	O L & C
Rice Co. Grange Mill Co. (certificate)	June	18	1874	222	“
Rice Co. Grange Mill Co. (certificate)	July	23	1874	224	“
Rice Co. Grange Mill Co. (certificate)	July	28	1874	226	“
Rice Co. Grange Mill Co. (certificate)	Sept.	15	1874	230	“
Rochester German Library Association	March	14	1874	32	“
Redwood Falls Warehouse and Elevator Co.	Aug.	26	1874	136	“
Ridgely Grange Hall Association	Jan.	4	1875	199	“
Red Wing and Trenton Transit Co	Feb.	26	1875	247	“
Rice County Grange Mill Co. (amended articles	May	5	1875	276	“
Red Wing Hotel Co. (amended articles)	May	15	1875	290	“
Red River Valley Railroad Co	June	12	1875	298	“
Rochester Lodge No. 21, A. F. & A. M	June	26	1875	302	“

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Root Safety Car Runner Co	March 28	1876	388	O L & C
Red River Transportation Co. (certificate)	April 7	1876	391	"
Ramsey County Horticultural Society	June 3	1876	452	C
Red Wing Stoneware Co. (certificate)	March 12	1877	336	O L & C
Red Wing Building Association	April 7	1877	604	C
Red Cap Base Ball Association	April 9	1877	610	"
Red River and Manitoba Railroad Co	Aug. 13	1877	78	D
Red Wing Mills (certificate)	Oct. 18	1877	361	O L & C
Rochester and Northern Minnesota Ry. Co.	Oct. 29	1877	123	D
Rock County Farming Co	Nov. 21	1877	139	"
Red Wing Building Association (amended articles)	Jan. 9	1878	190	"
Red Wing Stoneware Co. (certificate)	Feb. 16	1878	385	O L & C
Red Wing Stoneware Co. (certificate)	March 30	1878	409	"
Ramsey County German Horticultural Society of St. Paul (amended articles)	May 18	1878	421	"
Red Lake River Water Power and Canal Co.	March 7	1878	263	"
Rochester Southern Railroad Co	July 13	1878	381	"
Railway Loan Association	Nov. 22	1879	88	E
Renville Co. Agricultural and Live Stock Association	Dec. 29	1879	128	"
Richmond Mining Co	March 8	1880	208	"
Red Wing Norwegian Evangelical Lutheran Congregation	March 3	1880	210	"
Red River Northern Railway Co	April 14	1880	247	"
Real Estate and Building Society, St. Paul.	April 19	1880	267	"
Rising Sun Lodge No. 49, A. F. & A. M.	May 14	1880	320	"
Red River Land Co	Oct. 18	1880	486	"
Red Wing Furniture Factory (certificate)	Feb. 11	1880	18	2,O,L&C
Rock County Farming Co. (amendments)	March 16	1880	22	"
Red River Roller Mills	Feb. 2	1881	588	E
Red Wing & Iowa Ry. Co.	Feb. 24	1881	624	"
Rock County Farming Co. (amendment)	April 8	1881	131	F
Rush City Independent Fire Co	Aug. 11	1881	319	"
Red Wing Wagon and Carriage Manufacturing Co	Aug. 23	1881	337	"
Rainy River Boom Co	Oct. 25	1881	434	"
Rainy River Log Running and Improvement Co	Oct. 25	1881	437	"
Railway Loan Association (amendment)	March 2	1882	40	G
Red River and Lake of the Woods Railroad.	April 3	1882	172	"
Red Wing Manufacturing Co. (certificate)	April 8	1882	185	"
Rio Grande Mining Association	June 1	1882	362	"
Richter Patent Tannin Co	July 28	1882	484	"
Richter Patent Tannin Co. (certificate)	Aug. 1	1882	488	"
Red Wing Paper Mills (certificate)	Aug. 15	1882	516	"
Red River Water Power Co	Oct. 4	1882	611	"
Rice Street Building Society	Oct. 9	1882	618	"
St. Anthony & Sauk Rapids Steamboat Company	July ..	1854	Origi	nal.
St. Peter's Co	Aug. ..	1854	Origi	nal.
St. Paul Church Mission	May 5	1856	Origi	nal.
St. Anthony Turnverein	July ..	1857	Origi	nal.
St. Peter's Church of Shakopee	April 13	1859	Origi	nal.

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St. Anthony & Minneapolis Union Gas Light Co	Aug.	1	1858	Origi	nal.
St. Paul & Mendota Railroad Co	May	25	1859	Origi	nal.
St. Anthony Falls Church Mission Trust	June	11	1859	Origi	nal.
St. Paul & Lake Superior Air Line Railroad Co	March	24	1860	13	A
St. Paul, Lakeland & Hudson Railroad Co	March	27	1860	23	“
St. Anthony Falls Transit Railroad Co	July	9	1860	29	“
St. Paul, Lakeland & Hudson River Railroad Co	Feb.	23	1863	45	“
Sioux City, St. Paul & Lake Superior Railroad Co	Dec.	28	1863	47	“
St. Anthony Turnverein	Feb.	27	1864	51	“
State Savings Association (Minneapolis)	Dec.	19	1865	Origi	nal.
State Line, Le Roy & Austin Railway Co	Jan.	3	1866	Origi	nal.
St. Gertrude's Convent and Academy (Shakopee	Feb.	4	1866	Origi	nal.
Society of the First Presbyterian Church of Preston	March	3	1866	Origi	nal.
State Convention of Universalists of the State of Minnesota	June	18	1866	Origi	nal.
Stillwater & St. Paul Railroad Co	June	27	1867	19	B
St. Peter Benevolent Aid Society	Feb.	1	1867	21	“
St. Charles & Chatfield Branch Railroad Co.	Feb.	6	1867	23	“
St. George's Society, St. Paul	March	16	1867	46	“
St. Ansgar's Academy (Carver county)	June	14	1867	62	“
St. Joseph's Female Academy (St. Paul)	June	25	1867	64	“
Star Works Manufacturing Co (Hastings)	July	12	1867	68	“
St. Paul Malt & Ale Co	Sept.	4	1867	70	“
State Savings Association (St. Cloud)	Jan.	2	1868	82	“
St. Croix Valley Academy Association	Jan.	29	1868	87	“
St. Paul Fire Department Association	Feb.	18	1868	95	“
Stevens Seminary (Glencoe)	March	2	1868	103	“
St. Paul Library Association	May	5	1868	122	“
Scandinavian Transportation Co	Oct.	31	1868	148	“
St. Paul & Minneapolis Air and Hour Line R. R. Co	Nov.	26	1868	159	“
Superior & State Line Railroad Co	Jan.	2	1869	162	“
St. Paul Dispatch Printing Co	Jan.	4	1869	164	“
Society of the German Lutheran Trinity Church of St. Paul	April	12	1869	180	“
Stillwater & St. Paul R. R. Co. (amended articles)	May	29	1869	192	“
St. Croix Farmers' Association	June	3	1869	202	“
St. Joseph's Orphan Society	July	30	1869	216	“
St. Paul Mutual Building Association No. 1	Aug.	16	1869	218	“
St. Peter Library Association	Oct.	4	1869	237	“
Star of the West No. 14 of the I. O. of O. F. of Minnesota	Dec.	3	1869	254	“
St. Paul & Minneapolis Air and Hour Line R. R. Co. (amended articles)	Dec.	3	1869	256	“
St. Paul, Stillwater & Taylors Falls Railroad Co	Dec.	4	1869	259	“
St. Paul Manufacturing Co	Jan.	25	1870	284	“

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St. Croix Valley Academy	Jan.	26	1870	272	B
Southern Minnesota Eclectic Medical Society	Feb.	3	1870	281	“
Scandinavian Printing Co	Feb.	18	1870	282	“
Scandinavian Mutual Protection Association.	Feb.	22	1870	289	“
St. Paul & Dubuque Railroad Co	Feb.	25	1870	292	“
St. Paul Workingmen's Building Society	March	9	1870	302	“
St. Peter Cornet Band	June	10	1870	328	“
Superior & Pacific Ry. Co	Oct.	25	1870	353	“
Stillwater & St. Paul Railroad Co. (amended articles)	Nov.	18	1870	358	“
St. Anthony Falls Cotton Manuf. Co	Dec.	13	1871	365	“
St. Paul, Rochester & Iowa Railroad Co	Jan.	12	1871	371	“
Star Cheese Co	Feb.	5	1871	391	“
Soldiers' Orphan Home	Feb.	5	1871	395	“
St. Peter Hotel Co	Feb.	23	1871	408	“
Stillwater & St. Paul Air Line Railway Co	March	1	1871	410	“
St. Paul Lumber Co	March	27	1871	418	“
Skandinaviska Sjuk Hjelp Foreningen	April	13	1871	424	“
Society of the First Presbyterian Church of Lanesboro	May	4	1871	429	“
St. Paul Academy of Natural Science	May	9	1871	434	“
Scandinaviska Foreningen St. Puul	May	19	1871	443	“
Slovanka Lipa	Aug.	7	1871	453	“
St. Cloud Agricultural and Driving Park Association	Sept.	25	1871	459	“
Sauk Valley Mining Co.	Sept.	25	1871	465	“
Superior & Northwestern Railroad Co	Oct.	19	1871	471	“
St. Louis River Boom Co	Nov.	29	1871	485	“
St. Louis & Cloquet River Railroad Co	Dec.	18	1871	488	“
St. Louis River Logging & Lumber Manuf. Co	Dec.	18	1871	490	“
St. Louis River Manuf. Association,	Jan.	5	1872	495	“
St. Paul Union Elevator Co	Jan.	10	1872	498	“
Sibley County Agricultural Society	Feb.	7	1872	508	“
St. Cloud Printing Co	Feb.	16	1872	513	“
St. Anthony Falls Gas Light Co	Feb.	17	1872	515	“
St. Peter Manufacturing Co	March	26	1872	530	“
Schiller Grove No. 3, U. A O. D.	March	26	1872	533	“
St. Paul Workingmen's Building Society (modification of articles)	May	30	1872	548	“
St. Paul, Stillwater & Taylors Falls Railroad Co. (new articles modifying the original	June	24	1872	552	“
Shakopee Soap Factory	March	26	1872	536	“
St. Peter Hotel Co	March	26	1872	539	“
St. Mary's Hall, Faribault	June	19	1872	550	“
St. Croix Railway Improvement Co.	Aug.	14	1872	564	“
St. Paul Lumber Co. (increase of the indebtedness of the Co)	Aug.	17	1872	570	“
St. Paul Harvester Works	Sept.	21	1872	586	“
St. Paul Lumber Co (amendment of articles of incorporation)	Oct.	23	1872	593	“
Sauk Rapids Manuf. Co	Dec.	2	1872	604	“
St. Paul Brick Manuf. Co	Dec.	12	1872	613	“

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Stillwater Savings Bank	Jan.	13	1873	628	B
St. Croix Lumber Co	Jan.	14	1873	630	"
St. Cloud Library Association	Jan.	17	1873	631	"
Sleepy Eye Lake & Minnesota River Ry. Co.	Feb.	7	1873	637	"
Stearns County Agricultural Society	Feb.	19	1873	645	"
St. Croix Valley Savings Bank	April	4	1873	676	"
St. Paul Lumber Co. (amended articles)	April	22	1873	684	"
Stillwater Park Association	Aug.	16	1873	721	"
St. Paul Fuel Co	Oct.	27	1873	745	"
St. Paul Turn Verein	Feb.	2	1874	785	"
Spring Valley Grange Union	April	22	1874	45	C
Star Manufacturing Co	May	12	1874	68	"
St. Paul Workingmen's Building Society (modification of articles)	May	12	1874	70	"
Stillwater Trout Brook Co	May	13	1874	73	"
Stillwater Gas Light Co	May	13	1874	75	"
St. Boniface Mutual Aid Society, of Hastings	May	30	1874	83	"
Stillwater and St. Paul Railroad Co. (amended articles)	June	8	1874	96	"
St. Paul Warehouse and Elevator Co	June	5	1874	102	"
Swedish Lutheran Board of Education	Aug.	13	1874	128	"
Seymour, Sabin & Co	Aug.	20	1874	134	"
Skandinaviska Sjuk Hjeip Foreningen, of Red Wing	Sept.	8	1874	147	"
South Stillwater Lumber Co	Oct.	11	1874	174	"
St. Paul Harvester Works (amendment)	Nov.	14	1874	234	O L & C
St. Olaf's School	Nov.	17	1874	180	C
St. Cloud and St. Peter Railroad Co	Jan.	15	1875	211	"
Sauk Rapids and Taylors Falls Railroad Co.	Jan.	29	1875	214	"
St. Louis River Boom Co	Feb.	11	1875	226	"
St. Louis Dalles Improvement Co	Feb.	11	1875	228	"
Superior and Southwestern Railroad Co	Feb.	26	1875	245	"
Swede Benevolent Society of Minneapolis	March	20	1875	256	"
St. Anthony Falls Water Power (certificate)	April	14	1875	276	O L & C
St. Patrick's Catholic Men's Society	April	23	1875	272	C
St. Paul Academy of Natural Science	May	5	1875	281	"
Society of Oblate Fathers for Mission among Poor	May	14	1875	288	"
Swedish Pioneer Printing Co	July	6	1875	307	"
St. Cloud Granite Quarrying and Manufacturing Co	Aug.	16	1875	315	"
St. Paul Gymnastic Association	Sept.	23	1875	327	"
St. Paul Plow Works	March	31	1876	394	"
Standard Club of St. Paul	April	1	1876	397	"
St. Joseph Benevolent Society	April	7	1876	399	"
St. Clement's Young Men's Benevolent Society	April	12	1876	410	"
St. Paul and Dakota Railroad Co	April	20	1876	417	"
St. Paul Musical Society	May	18	1876	427	"
St. Paul Soap Co	May	31	1876	429	"
St. Paul and Dakota Railroad Co. (amended articles)	June	23	1876	312	O L & C
Stickney, Smith Co	Aug.	17	1876	479	C

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St. Paul Dispatch Co	Sept. 20	1876	492	B
Scandinavian Temperance Union, of Stillwater	Sept. 22	1876	504	"
Swedish Bethesda Society	Dec. 2	1876	531	"
St. Paul Workingmen's Society (amended articles)	Dec. 8	1876	324	O L & C
St. Paul Harvester Works (resolution)	Feb. 21	1877	332	O L & C
St. John's Church of Byrnsville	March 14	1877	567	C
St. Mark's Church, Shakopee	Jan. 11	1877	538	"
St. Mary's Church, Shakopee	Jan. 11	1877	542	"
St. Paul and Black Hills Gold Mining Co	March 22	1877	578	"
South Stillwater Agricultural Works	April 2	1877	590	"
Self Adjusting Mill Stone Co	April 5	1877	598	"
Stillwater Building Association	April 11	1877	613	"
St. James and Fort Dodge Railroad Co	April 27	1877	5	D
Southern Minnesota Stock Breeders' Association	April 30	1877	7	"
St. Joseph Church, of Lakeville	May 1	1877	10	"
St. George's Church, of West Newton	May 5	1877	14	"
St. Joseph's Church, of Red Wing	June 5	1877	31	"
Society for the Promotion of Arts, Sciences and Letters	July 19	1877	28	"
St. Peter's Church, of Delano	Aug. 3	1877	64	"
St. Michael's Church, of Frankfort Town	Aug. 3	1877	69	"
St. Patrick's Church, of Shieldsville	Aug. 3	1877	73	"
St. Paul Plow Works (amended articles)	Aug. 18	1877	82	"
St. Louis Church, of St. Paul	Sept. 12	1877	98	"
St. Stanisliacus Kostka	March 28	1877	586	C
St. Felix Church, of Wabasha	Sept. 13	1877	105	D
Stillwater Mills	Sept. 14	1877	103	"
St. Paul Street Railway Co. (certificate of organization)	Nov. 16	1877	366	O L & C
Southwestern Railway Co	Nov. 20	1877	144	D
St. John the Baptist Church, of Dayton	Nov. 24	1877	153	"
St. Paul Foundry and Manufacturing Co	Nov. 26	1877	150	"
Schiller Lodge No. 11, Knights of Pythias	Dec. 8	1877	169	"
St. Mary's Church, of St Paul	Dec. 26	1877	174	"
Southern Minnesota Railway Extension Co	Jan. 31	1878	199	"
Swedish Brethren, Minneapolis	Jan. 21	1878	217	"
St. Anthony Church, of Minneapolis	Jan. 25	1878	220	"
Snake River Dam Co	Feb. 8	1878	238	"
St. Patrick's Church, of Brownsville	Feb. 19	1878	243	"
St. Wenceslau's Church of Scott and Le Sueur Counties	Feb. 15	1878	248	"
State Building Association	March 4	1878	253	"
Stillwater Street Railway and Transfer Co	March 15	1878	269	"
St. Paul Real Estate Exchange	May 3	1878	289	"
Stillwater Temple of Honor No. 10, of the State of Minnesota	June 13	1878	353	"
St. Wencislau's Roman Catholic Benevolent Society, of St. Paul	Oct. 18	1878	400	"
St. Paul Grove No. 7, A. O. of D	Nov. 22	1878	422	"
St. Peter's Church of Mendota, Dakota county	March 5	1878	1	C R

NAME OF INCORPORATION.	WHEN FILED.		Page.	Book.
	Month.	Year.		
St. Patrick's Church, of Inver Grove, Dakota county	March 5	1878	5	Book of Church Records.
Sacred Heart Church, of Faribault	March 18	1878	9	
St. Joseph Church, of Glencoe	March 28	1878	13	
St. Peter's Church, of St. Peter	April 3	1878	7	
St. Nicholas Church, of Traverse, Nicollet county	April 3	1878		
St. Henry Church, of Sharon, Le Sueur county	April 3	1878	25	
St. Malachy's Church, Clontarf	April 11	1878	37	
St. Mary's Church, of New Trier, Dakota county	April 4	1878	41	
St. Michael's Church, of Belgrade, Nicollet county	April 3	1878	45	
St. Joseph Church, of St. Paul	May 1	1878	49	
St. Stephen's Church, of Anoka	May 10	1878	53	
St. Mary's Church, of Lake City	May 8	1878	57	
St. Peter's Church, of Credit River, Scott county	May 16	1878	1	
St. John the Baptist Church, of Caledonia, Houston county	May 25	1878	65	
St. Peter's Church, of Caledonia, Houston county	May 27	1878	69	
St. Patrick's Church, Kandiyohi county	July 10	1878	73	
St. Gertrude's Church, of Meeker county	July 10	1878	77	
St. Patrick's Church, of Wabasha county	Aug. 6	1878	85	
Sacred Heart Church, of Steele county	Aug. 22	1878	89	
St. Stanislaus' Church, Winona	Sept. 13	1878	93	
St. Boniface Church, of Hastings	Sept. 17	1878	97	
St. Peter and Paul Church, of Hennepin	Sept. 30	1878	101	
Scholastic Church, of Le Sueur county	Nov. 19	1878	105	
St. Adalbertus Church, of McLeod	Nov. 22	1878	109	
Sergeant's Mill Burr Driver Co	Jan. 10	1879	444	D
St. Paul Union Depot Co	Jan. 25	1879	474	"
Slovanska Lipa (dissolution and surrender of articles of incorporation)	Jan 4	1879	478	"
Stillwater Dock Co	Jan. 24	1879	486	"
St. Paul Book and Stationery Co	Jan. 30	1879	504	"
St. Cloud Water Power Co	March 4	1879	523	"
St. Cloud, Fort Ridgely & Fort Dodge R. R. Co	Feb. 27	1879	526	"
St. Paul Dramatic Club	March 25	1879	558	"
Sisterhood of Bethany	April 2	1879	579	"
Scandia Lodge No. 6, K. of P	May 8	1879	592	"
St. Paul Foundry & Manuf. Co. (certificate)	May 23	1879	606	"
St. Patrick's Catholic Church of Lanesboro	Dec. 6	1878	117	C R
St. Joseph's Catholic Church of Preston	Dec. 6	1878	121	"
St. Joseph's Church of Winona	Jan. 24	1879	125	"
St. Paul and Minnesota Exposition	Sept. 5	1879	42	E
Second German Society of St. Paul M. E. Church (certificate)	Dec. 9	1879	8	2 O L & C
Swedish Lutheran Board of Education	Dec. 23	1879	94	E
Six Mile Grove Norwegian Evangelical Lutheran Church	Dec. 16	1879	97	"

NAME OF INCORPORATION.	WHEN FILED.			Page.	Book.
	Month.		Year.		
Society of the Sisters of Christian Charity, New Ulm	Jan.	21	1880	144	E
St. Cloud Water Power Co	Jan.	24	1880	154	"
Snake River Transportation Co	Feb.	21	1880	174	"
Southern Minnesota Masonic Relief Ass'n	Feb.	23	1880	195	"
Society of Mercy of the Swedish Evangelical Lutheran Church of Minnesota	Feb.	10	1880	199	"
Stillwater Steam Heating Co	March	23	1880	217	"
Stillwater & Hastings Railway Co	April	2	1880	229	"
Stillwater City Hospital	April	12	1880	237	"
Stillwater Water Co	April	19	1880	270	"
St. Cloud & Lake Traverse Railway Co	May	1	1880	291	"
St. Paul Rifle Club	May	11	1880	302	"
St. Paul, Stillwater & Taylors Falls Railroad Co. (amendment)	May	14	1880	324	"
Stillwater Water Co	May	22	1880	336	"
St. Clemens Benevolent Society	May	19	1880	354	"
St. Paul Board of Trade	June	2	1880	356	"
Stillwater Female Academy of the Immaculate Conception	June	25	1880	391	"
St. Louis River Lumber Co	July	2	1880	398	"
St. Paul Dispatch Co. (amendment)	June	26	1880	407	"
St. Peter Church of the Evangelical Lutheran Congregation, Watertown	July	21	1880	420	"
St. Peter and Paul Church of Mazeppa	Nov.	9	1880	141	C R
St. Mary Church of Belvidere	Nov.	9	1880	136	C R
St. Croix Dalles Co	Sept.	25	1880	475	E
St. Louis River Dalles Improvement Co (amendments)	Nov.	29	1880	518	"
St. Louis River Lumber Co. (amendment)	Dec.	11	1880	543	"
Star Cheese Co. (amendment)	Dec.	21	1880	542	"
St. Louis River Lumber Co. (certificate)	Dec.	11	1880	546	"
St. Louis River Boom Co	Dec.	28	1880	550	"
Skandinaviska Sjukhjeld Foreningen of Red Wing, (amendment)	Jan.	21	1881	560	"
St. Louis River Lumber Co. (amendment)	Jan.	24	1881	570	"
Sauk Rapids Co	Feb.	4	1881	591	"
Stewart River Improvement Co	Feb.	10	1881	607	"
Sauk Center Northern Ry. Co.	Feb.	23	1881	618	"
South Florida Colony	March	3	1881	6	F
Spring Valley Creamery & Stock Co	March	3	1881	9	"
Single Mens' Endowment Association of Minnesota	March	12	1881	44	"
Stillwater, Hastings & Rochester Ry. Co	March	22	1881	72	"
St. Paul Arion	March	22	1881	79	"
Swenska Sallskapet "Vega"	April	2	1881	111	"
St. Joseph German Catholic Orphan Society.	April	4	1881	123	"
Stillwater City Hospital (amendment)	April	5	1881	126	"
St. Paul Harvester Works (amendment)	April	19	1881	162	"
St. Paul Harvester Works (amendment)	April	21	1881	178	"
St. Paul Book and Stationary Co. (amendment)	May	7	1881	194	"
St. Emmanuel Church of the Evangelical Lutheran Congregation at Wellington	April	21	1881	199	"

NAME OF INCORPORATION.	WHEN FILED.			Page.	Book.
	Month.		Year.		
Seymour, Sabin & Co. (amendment)	May	20	1881	227	F
St. Paul Linseed Oil Co	June	2	1881	235	"
St. Louis River Boom and Improvement Co.	June	6	1881	238	"
St. Paul Dispatch Co. (amendment)	June	9	1881	243	"
Society for the Relief of the Poor	June	10	1881	252	"
St. Paul Globe Printing Co	June	20	1881	268	"
St. Paul Storm Insurance Co	July	18	1881	285	"
Silver Bell Mining Co	July	26	1881	292	"
Silver Bell Mining Co. (by-laws)	July	28	1881	294	"
St. Paul Motor and Horse Railway Co	Aug.	18	1881	327	"
Swedish Publishing Co	Aug.	27	1881	347	"
St. Paul Equipment Co	Sept.	27	1881	392	"
Swedish Ev. Mission Congregation of Vasa, Goodhue County	Nov.	2	1881	442	"
Standard Coal Co	Nov.	26	1881	474	"
Stillwater Street Railway and Transfer Co. (amendment)	Nov.	25	1881	477	"
Stillwater Electric Light Co	Nov.	29	1881	483	"
St. Paul Boom Co	Dec.	16	1881	517	"
St. John Roman Catholic Benevolent Society, St. Paul	Dec.	19	1881	529	"
St. Paul, Minneapolis & Chicago R. R. Co.	Dec.	19	1881	532	"
Sakred Heart Church	Dec.	22	1881	525	"
St. Paul Storm Insurance Co. (amendment)	Dec.	30	1881	552	"
St. Mary's Church, Sleepy Eye	Jan.	14	1882	3	C C R 2
St. Rose of Lima, Avoca	Jan.	14	1882	5	"
St. Raphael's Church, Springfield	Jan.	14	1882	7	"
St. James Church, Oakwood	Jan.	14	1882	11	"
St. Adalbert Church, St. Paul	Jan.	14	1882	15	"
St. Gabriel Church, Fulda	Jan.	14	1882	17	"
St. Vincent de Paul Church, Osseo	Jan.	14	1882	19	"
Sacred Heart Church, Belle Plaine	Jan.	25	1882	23	"
St. Joseph Church, Rushford	Jan.	25	1882	25	"
St. Dominic Church, Northfield	Jan.	25	1882	27	"
St. Paul Roller Mill Co	Jan.	31	1882	601	F
Stickney Smith Co. (amendment)	Feb.	3	1882	614	"
St. Francis, Benson	March	7	1882	29	C C R 2
St. Felic, Wabasha	March	7	1882	31	"
St. Jane Chantal, Corcoran	March	7	1882	33	"
Sacred Heart, Owatonna	March	9	1882	35	"
St. Joseph Church, of Rushford	March	13	1882	37	"
St. Anne Church, of Le Sueur	March	13	1882	39	"
St. Michael Church, of St. Paul	March	13	1882	41	"
Safety Electric Light Co	March	11	1882	73	G
Saint Cloud Reading Room Society	March	14	1882	88	"
St. Patrick Church, of Jefferson	March	16	1882	43	C C R 2
St. Paul Armory Association	March	20	1882	97	G
St. Paul Roller Mill Co. (certificate)	March	21	1882	103	"
Saint Croix and Snake River Imp. Co	March	25	1882	122	"
Southern Minnesota Fair Association	March	31	1882	162	"
Scandinavian Society, Duluth	April	4	1882	176	"
St. Anthony Church of Padua, Minneapolis	April	11	1882	45	C C R 2
St. Mary Church of Lake City	April	15	1882	47	"
St. Mark Church of Shakopee	April	21	1882	49	"

NAME OF INCORPORATION.	WHEN FILED.			Page.	Book.
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St. Peter Benevolent Aid Society	April	18	1882	206	G
St. Paul Electric Light and Power Co	April	19	1882	209	"
Shakopee Iron & Brass Works (certificate)	April	17	1882	218	"
St. Mary Church, St. Paul	May	1	1882	53	C C R 2
St. Ann Church, Medina	May	1	1882	51	"
St. John the Evangelist	April	28	1882	243	G
Savings Building Society	April	29	1882	249	"
Sauk Centre Mutual Building, Loan and Saving Fund Association	May	3	1882	276	"
St. Stanislaus Church, St. Paul	May	8	1882	57	C C R 2
St. Cloud Mutual Building, Loan and Saving Fund Association	May	15	1882	295	" G
St. Paul, Kasson & Iowa Railway Co	May	16	1882	312	"
St. Philip Church, Litchfield	May	23	1882	61	C C R 2
St. Michael Church, Stillwater	May	31	1882	63	"
St. Bridget Church, De Graff	May	31	1882	65	"
St. Louis Church, St. Paul	June	2	1882	67	"
St. Brandon Church, Green Isle	June	2	1882	69	"
St. Paul Real Estate Investment Co.	May	29	1882	350	G
St. Paul Real Estate Syndicate	June	7	1882	388	"
St. Paul and Minneapolis Messenger and Telephone Co.	June	8	1882	395	"
St. Paul Electric and Power Co. (certificate)	June	10	1882	412	"
St. Paul Navigation Co	June	12	1882	414	"
Silver & Copper Island Mining Co. of Minn.	June	14	1882	417	"
St. Joseph Church of Henderson	June	15	1882	71	C C R 2
St. Columbanus Church of Blooming Prairie.	June	15	1882	73	"
St. Aidan Church of Bath	June	27	1882	75	"
St. John the Evangelist Church of Fakon	June	27	1882	77	"
Scandinavian Church Society	Aug.	1	1882	490	G
St. Mary Church, New Trier	July	7	1882	79	C C R 2
St. Mary Church, Belvidere	July	20	1882	81	"
St. Joseph Church, Red Wing	July	20	1882	83	"
St. Peter and Paul Church, Mazeppa	July	20	1882	85	"
St. Paul Brush Electric Light Co	Aug.	1	1882	493	G
St. Paul Bethel Association	Aug.	7	1882	500	"
St. Paul Hotel Co	Aug.	10	1882	506	"
St. Paul Harvester Works (amendment)	Aug.	16	1882	522	"
Stoneman Sulky Plow Co	Aug.	19	1882	530	"
Sidle Fletcher Holmes Co	Aug.	22	1882	533	"
St. Patrick Church, Brownsville	Sept.	5	1882	87	C C R 2
St. Patrick Church, Lanesboro	Sept.	5	1882	89	"
St. Adrian Church, Adrian	Sept.	5	1882	1	"
Silver & Coper Island Mining Co., of Minnesota (By-Laws)	Aug.	28	1882	537	G
St. Mary Church, of Chatfield.	Sept.	15	1882	93	C C R 2
St. Ligndri Church, of Carimona	Sept.	15	1882	95	"
St. Lawrence O'Toole Church, Fountain	Sept.	15	1882	97	"
St. Ignatius Church, Spring Valley	Sept.	15	1882	99	"
St. Clement Church, Hammond.	Oct.	9	1882	101	"
St. Ann Church, Janesville	Oct.	9	1882	103	"
St. Paul Coffee House Association	Oct.	3	1882	601	G
St. Joseph's Gegenseiticher Unterstuetzungs Verein	Oct.	3	1882	604	"

NAME OF INCORPORATION.	WHEN FILED.		Page.	Book.*
	Month.	Year.		
St. John the Baptist, Caledonia	Nov. 1	1882	107	2 C C R
Swedish Evangelical Lutheran Church, Blooming Prairie	Oct. 30	1882	4	H
St. Bernardinus Unterstuctzungs Verein von Cologne, Minn	Oct. 31	1882	6	“
Swedish Evangelical Lutheran Sardis Congr., of Prior Town, Big Stone county	Nov. 3	1882	22	“
Sauk Centre Southern Railway Co	Nov. 24	1882	70	“
St. Canire Church, Kilkenny	Nov. 22	1882	109	2 C C R
St. Columbkille Church, Belle Creek	Nov. 22	1882	111	“
St. Michael Church, Montgomery	Nov. 22	1882	113	“
St. Rose of Lima Church, Cherry Grove	Nov. 22	1882	115	“
St. Michael Church, Pine Island	Nov. 22	1882	117	“
St. Mary Church, Arlington	Nov. 22	1882	119	“
St. Charles' Church, Chatham	Nov. 28	1882	125	
St. Paul Mutual Building Association No. 1 (Amendment)	Nov. 25	1882	86	H
Tribune Printing Co., Minneapolis	Aug. 23	1867	51	B
Taylors Falls & Superior Railroad Co	Feb. 19	1868	98	
Teutonia Lodge, No. 19, I. O. of O. F	March 25	1870	310	“
Trades Manufacturing Co	Jan. 23	1871	375	“
Trustees of the German Evangelical Lutheran St. John congregation, unaltered Augsburg confession, city of St. Paul	Oct. 20	1871	Origi	nal
Times Printing Co	Feb. 13	1873	639	B
Tuscan Lodge, No. 77, of A. F. & A. M	Nov. 28	1874	72	C
Tube Well Co	May 6	1874	64	“
Tribune Publishing Co	July 13	1874	107	“
Taylors Falls Copper Mining Co	Dec. 6	1874	190	
Taylors Falls & Lake Superior Railroad Co	Feb. 9	1875	223	“
Taopi Mill Co. (certificate)	March 8	1875	273	L & C
Taopi Farming Co	April 21	1875	268	C
Tribune Co	Jan. 8	1876	345	“
Turners' Widows & Orphans Relief Fund of Minn	Oct. 25	1876	512	“
Taylors Falls Agricultural and Driving Park Association	May 19	1877	25	D
Turners' Building Association	Oct. 10	1877	118	“
Teutonia Lodge, No. 9, Order der Hermans Soehne	Jan. 14	1880	138	E
Turners' Building Association (amendment)	July 1	1880	405	“
Tabitha Society of the State of Minnesota	Nov. 16	1880	512	“
Trustees elected to the 2d German Society of St. Paul M. E. Church	Dec. 9	1879	8	O L & C
T. S. White Stationery Co	Feb. 28	1882	30	G
Trinity Church of the Evangelical Lutheran congregation, Fergus Falls	April 21	1882	220	“
Tribune Print Co	April 27	1882	236	“
Transcontinental Elevator Co	May 3	1882	270	“
Transcontinental Commercial Co	May 18	1882	322	“
Transcontinental Commercial Co	Sept. 26	1882	582	“
United States Telegraph Co	May 30	1864	Origi	nal
Union Gold & Silver Mining Co., of Minn	Aug. 10	1866	153	B
Union Savings Bank of Rochester	Feb. 14	1868	94	“

NAME OF INCORPORATION.	WHEN FILED.		Page.	Book.
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Union Hall Association	Nov. 9	1869	242	B
Union Board of Trade of the cities of Minneapolis and St. Anthony	Nov. 16	1869	245	"
Union Improvement (of Pennsylvania)	January 26	1870	278	"
Union Canadian Francaise of Minneapolis	March 5	1874	26	C
Union Canadian Francaise, Faribault	May 14	1874	76	"
Upper Mississippi Navigation Co	Sept. 4	1874	145	"
Union Benevolent Society of St. Paul	Sept. 17	1874	153	"
Urland Norwegian Evangelical Lutheran Congregation	June 30	1880	402	E
Union Elevator Co. of Stillwater	August 18	1880	454	"
Unity Church of St. Paul	Feb. 5	1881	596	"
Union Quartz Mining & Milling Co	Dec. 19	1881	536	F
Union Quartz Mining & Milling Co. (by-laws)	Dec. 27	1881	547	"
Vermillion Falls Gold Mining Co	Nov. 8	1865	Original	
Visitation of B. V. M. Church of Brighton, Nicollet county	April 3	1878	33	C
Volkszeitung Printing & Publishing Co	Dec. 20	1879	100	E
Volkszeitung Printing & Publishing Co. (certificate)	March 29	1880	222	"
Vienna Consolidated Mining Co	March 25	1881	95	F
Vienna Consolidated Mining Co. (by-laws)	April 7	1881	133	"
Verndale, Shell City & Northern Railroad Co.	August 19	1881	331	"
Vichey Springs Co	Sept. 7	1881	376	"
Van Hoven Live Stock Co	March 3	1882	44	G
Vienna Mining Co	March 23	1882	107	"
Vienna Mining Co. (by-laws)	May 2	1882	256	"
Widows' and Orphans' Aid Society	Nov 5	1860	34	A
Watertown & La Crosse Gold & Silver Mining Co	June 30	1866	Original	
Wabasha Black Hoof Mining Co	June 29	1867	66	B
Watab Gold & Silver Mining Co	Sept. 25	1867	72	"
Warsaw Steam Mill Co.	January 14	1868	83	"
Winona Social Turnverin	Nov. 17	1869	246	"
Wabasha County Medical Society	January 5	1870	264	"
Wright County Agricultural Society	January 22	1870	270	"
Waseca Lodge, No. 17, I. O. of O. F.	March 1	1870	296	"
Winona & Southwestern Railroad Co	March 4	1870	298	"
Winona, Mankato & New Ulm Railway Co.	July 15	1870	337	"
Winona Gas Light Co	August 3	1870	343	"
Whitney Reaper & Binder Co.	January 31	1871	380	"
Whitney Manufacturing Co	January 31	1871	383	"
Winona, Homer, Dresbach & La Crescent Railway Co	Feb. 17	1871	406	"
Whitney Reaper & Binder Co	April 7	1871	421	"
Western Transportation & Mining Co. (state of Maine), also (state of Maine) an act additional to Chap. 46 of Revised Statutes, concerning corporations, (authorizing change of name of corporation)	May 1	1871	438	"
Western Transportation & Mining Co. (name changed to "Lake Superior & Puget Sound Co)	May 1	1871	440	"
Waseca County Agricultural Society	January 19	1871	374	"

NAME OF INCORPORATION.	WHEN FILED.		Page.	Book.
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Waseca Library Association	Jan. 13	1872	500	B
Winnebago City Mill Co	April 29	1872	541	"
Wells & Southeastern Railway Co	July 7	1872	557	"
West Minneapolis Turn Verein	July 18	1872	560	"
Winona Preparatory Medical School	July 22	1872	563	"
Wells Library Association	Sept. 6	1872	584	"
Winona Gas Light Co	Feb. 19	1873	644	"
Women's Christian Association of Minneapolis	March 11	1873	657	"
Wesleyan Methodist Seminary of Minnesota	June 6	1873	687	"
Winona Lodge, No. 18, F. & A. M.	Aug. 8	1873	708	"
Western Railroad Co. of Minnesota	Jan. 31	1874	774	"
Winona Savings Bank	April 16	1874	40	C
Washington Lodge, No. 1, O. S. of H.	April 10	1874	38	"
Winona Paper Barrel Co	Aug. 6	1874	125	"
West St. Paul Building Association No. 1	Oct. 10	1874	172	"
Wells Manufacturing Co. (certificate)	April 16	1875	277	O L & C
Winona Carriage Works (certificate)	July 19	1875	286	"
Waseca Turn Verein	Oct. 21	1875	330	C
Wabasha Manufacturing Co	Jan. 18	1876	360	"
Winona & St. Peter Land Co	April 8	1876	402	"
Worthington & Sioux Falls Railroad Co. (amended articles)	June 23	1876	312	O L & C
Willmar Library Association	Jan. 11	1877	546	C
Winnebago & St. Paul Railway Co	June 16	1877	618	"
Wilmina Silver Mining & Smelting Co.	Oct. 27	1877	131	D
Winona Grove, No. 6, U. A. O. D.	March 20	1878	271	"
Workingman's Home Association	June 14	1878	357	"
Watertown Engine, Hook & Ladder Co. No. 1	Jan. 14	1879	449	"
Wilcox, Diamond & Walsh	Feb. 20	1879	543	"
West St. Paul Building Association (amendments to articles of incorporation)	Jan. 10	1879	547	"
Warren Transit Co	July 16	1879	17	E
Woodland Mill Co. of Faribault	Sept. 11	1879	45	"
Winona Mill Co	Sept. 17	1879	49	"
Winona Rushford Wagon Co	Oct. 4	1879	55	"
Wells Flouring Mills Co. (certificate)	June 2	1879	533	O L & C
Working People's Mutual Fund & Loaning Association	Jan. 30	1880	163	E
Winona County Mining Co	Aprll 17	1880	257	"
Warsaw Advent Christian Church	May 12	1880	289	"
Workingmen's Building & Loan Society	May 12	1880	310	"
Western Elevator Co	Oct. 26	1880	503	"
Winona Rushford Wagon Co. (amendment)	Jan. 28	1881	577	"
Willmar College	Jan. 29	1881	585	"
Western Tramway Co	March 9	1881	18	F
Winona Electric Light Co	March 14	1881	47	"
West St. Paul Building Association (amendment)	April 7	1881	128	"
Winona Lumber Co	April 11	1881	152	"
Waumpach Manufacturing Co. (certificate)	Sept. 16	1881	383	"
Wabasha Elevator Co	Dec. 2	1881	487	"
Worthington Minnesota Ice Co	Jan. 17	1882	581	"
Winona Plow Co	Jan. 22	1882	590	"

NAME OF INCORPORATION.	WHEN FILED.		Page.	Book.
	Month.	Year.		
Wilton Manufacture Co	April 20	1882	215	G
Warren Manufacturing Co	May 8	1882	288	"
Wild Wood Park Association	May 15	1882	306	"
West Side Land & Cottage Co	May 15	1882	310	"
Winona Building & Loan Association	June 29	1882	439	"
Western Land Exchange	June 29	1882	444	"
Wadena Driving Park Association	Aug. 3	1882	497	"
Wabasha Mill Co	Aug. 17	1882	525	"
Wabasha Mill Co. (certificate)	Aug. 17	1882	528	"
Winona Mill Co. (amendment)	Sept. 11	1882	561	"
White Bear Lake Hotel Co	Sept. 21	1882	576	"
Western Town Lot Co	Sept. 27	1882	587	"
Western Town Lot Co. (amendment)	Sept. 27	1882	593	"
Workingmen's Building & Loan Association of Crookston	Oct. 13	1882	636	"
Washburn Mill Co	Oct. 18	1882	651	"
Washington Co., Minn., Auxiliary branch of the Woman's Christian Temperance Union.	Oct. 18	1882	655	"
West Publishing Co	Oct. 21	1882	670	"
Workingmen's Building & Loan Association of Crookston (corrected)	Oct. 26	1882	680	"
Winona Machinery Co	Nov. 2	1882	9	H
Waseca Manufacturing Co	Nov. 2	1882	12	"
Water Power Co. of Cloquet	Nov. 27	1882	90	"
Young Men's Library Association of Winona	May 7	1863	37	A
Young Men's Christian Association of Winona	Nov. 29	1869	252	B
Young Men's Library Association of Winona	Aug. 8	1873	710	"
Youmans Bros. & Hodgins	April 3	1877	592	C
Young America Railway Co	May 8	1878	303	D
Young Men's Christian Association of Northfield	March 1	1881	3	F
Young Men's Christian Association of Duluth, Minn	Nov. 3	1882	20	H
Zumbro Valley Improvement Co	Aug. 12	1865	Original	
Zumbro Lead Mining Co	March 15	1868	104	D

LIST OF AFFIDAVITS OF PUBLICATION.

In the fiscal year ending November 30th, 1882, there were filed for record three hundred and thirty-four (334) instruments creating corporations or modifying former articles, under the several statutes relating to corporations.

Affidavits of the publication of articles of incorporation were filed in one hundred and seventeen (117) cases.

NAME OF INCORPORATION.	Date of Filing.		Year.	Page.	Book.
Albert Lea State Line Railroad Co	Sept.	9	1872	171	
Audubon Printing Co	July	10	1873	182	"
American Postal Telegraph Co	Nov.	16	1874	235	"
Automatic Car Coupler Co	Feb.	19	1875	271	"
Aspelund Society	Nov.	25	1876	322	
American Railroad Car Runner Co	July	3	1877	353	"
Alexandria Elevator and Warehouse Co	Dec.	16	1878	471	"
Austin & Mankato R. R. Co	March	16	1880	20	2
Anchor Manufacturing Co	Nov.	29	1880	64	"
Albert Lea Creamery Co	May	10	1881	101	"
Austin Railway Co	May	27	1881	104	"
Austin Railway Co	May	28	1881	105	"
Appleton Mill Co	Aug.	31	1881	112	"
Arctic Storage Co	Jan.	13	1882	145	"
Angus Stock and Farming Co	April	8	1882	174	"
American Home Exchange and Trust Co. of Minnesota	Sept.	25	1882	233	"
Berlin Cheese Manufacturing Co	May	18	1871	154	1
Belle Plaine Salt Co	Aug.	16	1872	170	"
Brainerd Lumber and Manufacturing Co	Sept.	5	1872	171	"
Brownsville and Root River Interest Improvement Co	Feb.	23	1875	271	"
Brownsdale Grangers' Building Association	Jan.	5	1876	292	"
Board of Trade of Austin	Feb.	9	1876	294	"
Blue Earth Valley Stock Co	April	17	1876	306	"
Blue Earth Valley Railroad Co	March	14	1877	335	"
Bird Island Town Site Co	Sept.	26	1878	462	"
Bradner Smith Paper Co	Nov.	6	1879	9	2
Barnesville & Moorhead Railway Co	Aug.	10	1880	55	"
Bailey Manufacturing Co	Oct.	13	1880	61	"
Brule River Improvement and Booming Co	Aug.	12	1881	110	"

NAME OF INCORPORATION.	Date of Filing.	Year.	Page.	Book.
Gull River Lumber Co	June 16	1882	205	2
Gate City Carriage Co	Nov. 16	1882	244	"
Hubbard Harvester Co	March 28	1874	206	"
Hubbard Harvester Co	May 12	1874	212	"
Homestead Building Society	May 26	1874	218	"
Home Building Society	Sept. 12	1877	358	"
Hennepin Barrel Co	April 14	1880	38	"
Hennepin Barrel Co	April 14	1880	39	"
Hall & Dann Barrel Co	June 29	1880	46	"
Hall & Dann Barrel Co	June 29	1880	47	"
Hauser Malting Co	July 23	1880	51	"
Hall & Dann Barrel Co	Nov. 29	1881	132	"
Hall & Dann Barrel Co	Nov. 29	1881	133	"
Hall & Dann Barrel Co	Nov. 29	1881	134	"
H. M. Smyth Printing Co	Jan. 3	1882	143	"
Ida Grange No. 395	July 3	1877	352	1
Island Power Co	Dec. 9	1878	475	"
Ida Grange, Patrons of Husbandry	April 27	1882	181	2
Journal Printing Co	Dec. 15	1881	136	"
J. I. Case Plow Co	Feb. 28	1882	161	"
Jas. T. Elwell Manufacturing Co	Nov. 24	1882	249	"
Kokomo & St. Louis River Railway Co	Dec. 15	1871	159	1
Knife Falls Boom Corporation	Feb. 2	1872	161	"
Knights of Pythias Hall Association	June 14	1869	538	"
Kellogg, Johnson & Co	April 10	1882	175	2
Lake Superior, St. Anthony Falls & Minnesota River Air Line R. R. Co	Dec. 1	1868	122	1
Lake Pepin & Omaha Railroad	....	1870	141	"
Lake City Lumber Co	Sept. 10	1875	287	"
Le Sueur Center Land Co	Aug. 15	1876	216	"
Lake City Ferry and Transportation Co	March 24	1877	337	"
Lyndale Railway Co	July 10	1878	456	"
Lyndale Railroad Co	Sept. 19	1878	460	"
Little Falls & Dakota Railroad Co	March 6	1879	498	"
La Crosse & Omaha Railway Co	June 6	1879	532	"
Liberty Barrel Co	Aug. 2	1879	3	2
Lake Superior Elevator Co	Feb. 10	1880	11	"
Lake Park & Crookston Air Line R. R. Co	Jan. 28	1881	70	"
Lake Superior Elevator Co	Aug. 23	1881	111	"
La Du-King Manufacturing Co	April 3	1882	172	"
Lumberman Printing Co	June 1	1882	199	"
Lutheran Publication Society of the Northwest	July 26	1882	218	"
Ladies Home Literary Society	Nov. 13	1882	243	"
Minnesota Iron Works	Aug. 19	1868	113	1
Minnesota State Eclectic Medical Society	Aug. 20	1869	119	"
Mississippi River Slack Water Navigation Co	Jan. 25	1869	123	"
Minneapolis Gas Light Co	March 9	1870	136	"
Minneapolis Cotton Manufacturing Co	March 31	1870	139	"
Monitor Plow Works	Jan. 31	1872	160	"
Mankato Linseed Oil and Tow Co	July 25	1872	169	"
Minnesota Soap Co	Sept. 20	1872	172	"
Monitor Plow Works	May 13	1873	177	"
Monitor Plow Works (increase of stock)	May 30	1873	178	"
Minneapolis Street Railway Co	July 1	1873	180	"

NAME OF INCORPORATION.	Date of Filing.	Year.	Page.	Book.
Minnesota & La Crosse Plank Road Co	Aug. 28	1873	190	1
Minnssota Middlings Purifier Co	Aug. 23	1873	190	"
Minneapolis Car Coupling Co	Dec. 30	1873	194	"
Minneapolis Mutual Benefit, Building and Loan Association	Feb. 6	1874	198	"
Minnesota Emigration Co	Feb. 14	1874	199	"
Midway Imp. Co	March 5	1874	201	"
Moorhead Manufacturing Co	Feb. 23	1874	204	"
Moorhead Manufacturing Co	March 20	1874	205	"
Minnesota Railway Construction Co	May 27	1874	218	"
Minnesota Bed Spring Manufacturing Co	June 1	1874	220	"
Minnesota Cranberry Association	June 2	1874	220	"
Mechanic & Workingmen's Loan and Building Association, Minneapolis	Sept. 7	1874	229	"
Medina Mill Co	Jan. 22	1875	238	"
Merchants' International Steamboat Co	Feb. 9	1875	265	"
Minnesota Farmers' Mutual Fire Insurance Association	Feb. 19	1875	270	"
Minnesota Orthopedic Institute	April 5	1875	276	"
Minneapolis, St. Paul & Iowa Railway Co	April 19	1875	278	"
Masonic Hall Building Association	June 21	1875	285	"
Morristown Mill Co	Oct. 30	1875	289	"
Minnesota Midland Railroad Co	Jan. 15	1876	293	"
Minneapolis Lumber Co	April 13	1876	305	"
Minnesota Southwestern Railroad Co	June 17	1876	311	"
Minnesota Valley Railroad Co	July 17	1876	315	"
Minneapolis Millers' Association	Sept. 16	1876	319	"
Martin County Railroad Co	March 31	1877	340	"
Minnesota Colonization Co	April 7	1877	342	"
Minneapolis Northwestern Railroad Co	Feb. 5	1878	383	"
Minnesota Northern Railroad Co	Feb. 23	1878	387	"
Minnesota Iron and Steel Fence Co	June 7	1878	422	"
Minneapolis Eastern Railroad Co.	June 18	1878	425	"
Minneapolis Belt Railway Co	July 8	1878	427	"
Minneapolis, St. Cloud & Sauk Rapids Railroad Co	Aug. 16	1878	455	"
Murdock, Van Norman Co	Sept. 1	1878	458	"
Mississippi Valley Industrial Association	Sept. 21	1878	461	"
Mill Burr Driver Co	Jan. 22	1879	482	"
Minnesota Paper Co	Jan. 29	1879	484	"
Minneapolis & St. Paul Railroad Co	Jan. 31	1879	485	"
Minneapolis & St. Paul Railway Co	Feb. 4	1879	486	"
Minneapolis Eastern Railway Co.	Feb. 6	1879	487	"
Mississippi Boom Co.	March 26	1879	500	"
Minnesota & Dakota Northern Railroad Co.	March 21	879	502	"
Monitor Plow Works	March 27	1879	503	"
Minneapolis Harvester Works	March 19	1879	510	"
Minneapolis Harvester Works	March 29	1879	511	"
Mankato Linseed Oil and Tow Co.	May 26	1879	524	"
Mankato Mill Co	May 31	1879	536	"
Mankato & St. Cloud Railroad Co	March 7	1879	545	"
Minneapolis Elevator Co	June 30	1879	2	2
Minnesota Land and Farming Co.	Aug. 30	1879	5	"
Monitor Plow Works, Minneapolis	March 9	1880	18	"
Minneapolis Millers' Association	March 16	1880	19	"

NAME OF INCORPORATION.	Date of Filing.	Year.	Page.	Book.
Minnesota Printing Co	Mar. 15	1880	21	2
Minneapolis Elevator Co	May 10	1880	28	"
Meeker County Elevator Co	June 3	1880	32	"
Masonic Building Association	April 27	1880	33	"
Minneapolis Publishing and News Co	July 20	1880	49	"
Minnesota Brick and Construction Co	May 7	1880	50	"
Minneapolis & Northwestern Railroad Co	July 26	1880	52	"
Minneapolis Horse R. R. Co	July 26	1880	53	"
Minneapolis Street Railway Co	Sept. 23	1880	58	"
Mankato Building and Loan Association	Feb. 12	1881	76	"
Minnesota Northern R. R. Co	Feb. 10	1881	78	"
Moorhead, McCauleyville and Breckenridge R. R. Co	March 19	1881	86	"
Moorhead Driving Park Association	March 31	1881	89	"
Mazeppa Mill Co	April 4	1881	90	"
Mazeppa Mill Co	April 4	1881	91	"
Mazeppa Mill Co	April 4	1881	92	"
Minnesota Northern R. R. Co	April 26	1881	96	"
Minnesota State Tidning Co	May 2	1881	98	"
Mutual Union Telegraph Co	Sept. 7	1881	117	"
Minneapolis Harvester Works	Sept. 13	1881	119	"
Minneapolis Harvester Works	Sept. 13	1881	120	"
Manitou Island Land and Improvement Co	Sept. 15	1881	123	"
Moorhead Loan and Building Association	Oct. 31	1881	125	"
Minneapolis Gas Light Co	Nov. 10	1881	126	"
Minnesota Lumber Co	Dec. 12	1881	137	"
Minneapolis Union Railway Co	Dec. 30	1881	142	"
Minnessta Rendering Co	Jan. 0	1882	144	"
Minnesota and Dakota Elevator Co	Jan. 30	1882	153	
Minneapolis, Perham and Manitoba Air Line R. R. Co	Feb. 1	1882	154	"
Minnesota Coffee and Spice Co	Feb. 16	1882	157	"
Moorhead Publishing Co	March 1	1882	163	"
Moorhead Real Estate Improvement Co	April 26	1882	180	"
Minneapolis Syndicate	May 12	1882	186	"
Minnesota Central Construction Co	June 6	1882	200	"
Minnetonka Steamboat Co	July 24	1882	217	
Minneapolis and St. Paul Street Ry. Co	Aug. 4	1882	220	"
Minnesota Temple of Honor and Temperance Association	Sept. 9	1882	228	"
Minnesota Farmer Printing Co	Oct. 31	1882	240	"
Northwestern Coustruction Co	July 7	1870	140	1
New Ulm, Redwood and Big Stone Lake Railroad Co	Feb. 11	1871	146	"
Northwestern Tip Co	March 15	1873	176	"
North Star Boot and Shoe Co., Minneapolis	Aug. 22	1873	184	"
North Star Boot and Shoe Co., Minneapolis	Aug. 8	1873	183	"
Northwestern Produce Co	Oct. 9	1873	192	"
Nicollet Mutual Benefit Building and Loan Association	June 6	1874	221	"
Northwestern Manufacturing Co	Aug. 26	1874	228	"
North Star Manufacturing Co	Dec. 31	1875	290	"
Northfield Agricultural and Industrial Association	June 9	1876	308	"
North Shore Railway Co	Jan. 11	1877	326	"

NAME OF INCORPORATION.	Date of Filing.		Year.	Page.	Book.
Northwestern Fuel Co	May	31	1877	350	1
Northern Railroad Co	Oct.	16	1877	309	"
Northwestern Telephone Exchange Co	Jan.	9	1879	483	"
Northwestern Barrel Co	June	26	1879	1	"
North Star Building Society	Jan.	23	1880	10	2
North Star Iron Works Co	Aug.	18	1880	56	"
North Branch Trotting Park Association	Sept.	17	1881	57	"
Nordvesten Publishing Co	May	4	1881	99	"
North Star Woolen Mill Co	May	10	1881	100	"
Northwestern Fuel Co	May	31	1881	106	"
Northwestern Stove Works	Feb.	21	1882	159	"
North Dakota Land Co	April	22	1882	179	"
Northwestern Car and Manufacturing Co	April	1	1882	171	"
Northwestern Car and Manufacturing Co	April	1	1882	170	"
Northwestern Manufacturing and Car Co	May	15	1882	188	"
Northwestern Manufacturing and Car Co	May	15	1882	187	"
Northern Land Co	May	22	1882	193	"
Northern Pacific Elevator Co	May	24	1882	194	"
Northwestern Pipe and Paving Co	May	31	1882	196	"
Northwestern Casket Co	June	1	1882	198	"
Norcross Farmer's Elevator Co	July	10	1882	212	"
Northwestern Iron Co	Sept.	26	1882	234	"
Owatonna Mineral Springs Co	June	10	1875	282	1
Organization of Lake Superior and Mississippi Railroad Co	June	28	1877	355	"
Oneota Boom and Mill Co	July	17	1882	214	2
Odd Fellows Building Society	Oct.	26	1882	237	"
Plainview and Minnesota Telegraph Co	March	5	1874	201	1
Preston and Southwestern Railroad Co	Feb.	25	1874	202	"
Patrons' Warehouse Co	July	21	1874	227	"
People's Building and Loan Association	Sept.	28	1874	230	"
Patrons of Husbandry Warehouse Co., of Kellogg, Minnesota	Oct.	31	1874	233	"
Pioneer Company	March	15	1875	274	"
Pioneer Press Co	May	10	1875	279	"
Peterson Mill Co	Nov.	16	1875	290	"
Plainview and Zumbro Valley Railroad Co	Feb.	26	1876	295	"
Pioneer Press and Tribune Co	June	23	1876	313	"
People's Building Association	Oct.	21	1876	320	"
Polk City Manufacturing Co.	Aug.	29	1877	359	"
Polk City Manufacturing Co.	Aug.	29	1877	359	"
Plainview Narrow Gauge Railroad Co	Nov.	27	1877	368	"
Princeton & Anoka Railroad	Feb.	15	1878	384	"
Plainview Railroad Co.	Jan.	8	1878	406	"
Plainview Railroad Co	March	8	1878	401	"
Pembina Farm Co	May	6	1878	418	"
Pembina Farm Co	June	17	1880	40	2
Prairie Mills Co	Jan.	12	1881	68	"
Phœnix Barrel Manufacturing Co	March	21	1881	87	"
Phœnix Barrel Manufacturing Co	March	21	1881	88	"
Pray Manufacturing Co	April	22	1881	94	"
Prairie Mills Co. (amendment)	March	7	1882	165	"
Pioneer Real Estate and Building Society	May	17	1882	191	"
Pillsbury & Hulbert Elevator Co	July	27	1882	213	"
Paris Murton Co	Aug.	22	1888	224	"
Pioneer Press Co., (amendment)	Oct.	18	1882	236	"

NAME OF INCORPORATION.	Date of Filing.	Year.	Page.	Book.
Rochester Manufacturing Co	Sept. 30	1869	121	1
Red River Slackwater Navigation Co	June 17	1873	179	"
Rice's Point Railway Co	Sept. 15	1873	191	"
Red Wing Hotel Co	Feb. 28	1874	200	"
Red River Transportation Co	April 7	1874	206	"
Redwood Falls Warehouse and Elevator Co.	Sept. 7	1874	229	"
Red River Valley Railroad Co	June 18	1875	283	"
Root Safety Car Runner Co	March 28	1876	297	"
Red River Transportation Co	April 7	1876	302	"
Red River & Manitoba Railroad Co	Aug. 15	1877	356	"
Red River & Manitoba Railroad Co	Aug. 23	1877	356	"
Rochester & Northern Minnesota Railroad Co	Nov. 14	1877	364	"
Rock County Farming Co	Nov. 28	1877	370	"
Red Wing Building Association	April 7	1877	341	"
Red Wing Building Association	Jan. 9	1878	377	"
Red Lake River Water Power and Canal Co	March 22	1878	408	"
Rock County Farming Co	Feb. 19	1879	490 496	" "
Red River Northern Railway Co	April 14	1880	24	2
Rock County Farming Co	March 24	1880	26	"
Red River Land Co	Oct. 23	1880	62	"
Red Wing & Iowa Railway Co	Feb. 24	1881	83	"
Rainy River Boom Co	Nov. 3	1881	127	"
Rainy River Log Running and Improvement Co	Nc	1881	128	"
Railway Loan Association	March 2	1882	162	"
Red River and Lake of the Woods R. R. (amendment)	April 3	1882	173	"
Stillwater & St. Paul R. R. Co	Feb. 23	1867	98	1
Star Works Manufacturing Co	....	1867	98	"
Superior & State Line R. R. Co	Fe 16	1869	123	"
Southern Minnesota Eclectic Medical Society	Dec. 9	1869	128	"
St. Paul and Minneapolis Air and Hour Line R. R. Co	....	1869	128	"
St. Paul Manufacturing Co	....	1867	130	"
St. Paul Workingmen's Building Society	March 9	1870	136	"
St. Paul Mutual Building Association	....	1870	137	"
Superior & Pacific Railway Co	Dec. 15	1870	142	"
Star Cheese Co	....	1871	150	"
St. Peter Hotel Co	March 13	1871	152	"
St. Paul, Stillwater and Taylors Falls Railroad Co	July 11	1871	155	"
Superior & Northwestern Railway Co	Nov. 8	1871	156	"
St. Louis River Boom Co	Dec. 15	1871	159	"
St. Paul Union Elevator Co	Jan. 30	1872	160	"
St. Louis River Manufacturing Association	Feb. 2	1872	161	"
St. Cloud Printing Co	March 9	1872	163	"
St. Peter Manufacturing Co	March 29	1872	165	"
St. Croix Railway and Improvement Co.	Aug. 14	1872	169 170	" "
St. Paul Harvester Works	Sept. 21	1872	172 173	" "

NAME OF INCORPORATION.	Date of Filing.	Year.	Page.	Book.
Sleepy Eye Lake and Minnesota River Railroad Co	Feb. 7	1873	175	1
St. Paul Press Co	July 5	1873	182	“
Stillwater Park Association	Aug. 16	1873	185	“
Spring Valley Granger Union	May 1	1874	211	“
Star Manufacturing Co	May 12	1874	211	“
St. Paul Coal Co	May 16	1874	213	“
St. Paul Warehouse and Elevator Co	July 22	1874	224	“
Sauk Rapids and Taylor's Falls Railroad Co.	Jan. 29	1875	263	“
St. Louis River Dalles Improvement Co	Feb. 4	1875	264	“
St. Louis River Boom Co	Feb. 4	1875	264	“
St. Louis River Dalles Improvement Co	March 5	1875	272	“
St. Louis River Boom Co	March 5	1875	273	“
St. Cloud and St. Peter Railroad Co	May 15	1875	281	“
St. Cloud Granite Quarrying and Manufacturing Co	Sept. 29	1875	288	“
St. Paul Plow Works	March 31	1875	298	“
St. Paul & Dakota Railroad	April 20	1875	308	“
St. Paul Soap Co	June 27	1876	314	“
Stickney and Smith Co	Aug. 25	1876	318	“
St. Paul Dispatch Co	Oct. 21	1876	320	“
St. Paul Dispatch Co	Nov. 28	1876	323	“
Stillwater Building Association	April 11	1877	343	“
Self-Adjusting Mill Stone Co	April 19	1877	344	“
St. James and Fort Dodge Railroad Co	April 27	1877	345	“
Stillwater Mills	Nov. 14	1877	365	“
Southwestern Railroad Co	Nov. 20	1877	369	“
St. Paul Harvester Works (resolution)	Dec. 2	1874	236	“
St. Paul Foundry and Manufacturing Co	Dec. 8	1877	375	“
Southern Minnesota Railroad Extension Co.	Jan. 30	1878	381	“
Stillwater Street Railway and Transfer Co.	May 16	1878	412	“
State Building Association	April 9	1878	423	“
St. Paul Union Depot Co	Feb. 4	1879	489	“
St. Cloud Water Power Co	March 15	1879	499	“
St. Paul Foundry and Manufacturing Co	June 4	1879	535	“
Stillwater Steam Heating Co	March 23	1880	22	2
Stillwater Water Co	April 19	1880	23	“
Stillwater and Hastings Railway Co	April 9	1880	25	“
St. Paul, Stillwater & Taylors Falls Railroad Co	May 14	1880	29	“
Stillwater Water Co	June 7	1880	31	“
St. Paul Board of Trade	June 9	1880	35	“
St. Cloud and Lake Traverse Railway Co.	May 31	1880	41	“
St. Paul Daily Dispatch	June 28	1880	43	“
St. Louis River Lumber Co	July 30	1880	54	“
St. Croix Dalles Co	Oct. 9	1880	59	“
St. Louis River Dalles Improvement Co	Dec. 6	1880	67	“
Star Cheese Co	Jan. 25	1881	69	“
Sauk Rapids Co	Feb. 4	1881	73	“
Stewart River Improvement Co	Feb. 18	1881	80	“
Sauk Center Northern Railway Co	March 8	1881	84	“
St. Paul Harvester Works	May 14	1881	102	“
Seymour, Sabin & Co	June 25	1881	107	“
St. Paul Globe Printing Co	July 1	1881	108	“
St. Louis River Boom and Improvement Co.	July 5	1881	109	“
St. Paul Equipment Co	Oct. 10	1881	122	“

NAME OF INCORPORATION.	Date of Filing.		Year.	Page.	Book.
Standard Coal Co	Dec.	17	1881	138	2
St. Paul Boom Co	Dec.	28	1881	139	"
St. Paul, Minneapolis & Chicago R R. Co.	Dec.	30	1881	141	"
Stillwater Street Railway and Transfer Co (amendment)	Jan.	17	1882	149	"
Stillwater Street Railway and Transfer Co (amendment)	Jan.	17	1882	148	"
Stillwater Electric Light Co	Jan.	17	1882	147	"
St. Paul Storm Insurance Co (amendment)	Feb.	11	1882	156	"
St. Paul Storm Insurance Co	Feb.	11	1882	155	"
Stickney Farm Co (amendment)	May	1	1882	182	"
St. Paul Electric Light and Power Co	May	4	1882	183	"
St. Paul Electric Light and Power Co	May	4	1882	185	"
Sauk Centre Mutual Building Loan and Saving Fund Association	May	15	1882	189	"
Savings Building Society	May	16	1882	190	"
St. Cloud Mutual Building, Loan and Saving Fund Association	May	23	1882	192	"
St. Paul, Kasson and Iowa Railway Co	June	1	1882	197	"
St. Paul Real Estate Investment Co	June	10	1882	203	"
St. Paul & Minneapolis Messenger and Telephone Co	June	15	1882	206	"
St. Paul Real Estate Syndicate	June	15	1882	207	"
S. Paul Hotel Co	Aug.	19	1882	223	"
Stoneman Sulky Plow Co	Aug	28	1882	225	"
St. Paul Harvester Works, (amendment)	Aug.	28	1882	226	"
Sidle-Fletcher-Holmes Co	Aug.	31	1882	227	"
St. Paul Navigation Co	Sept.	11	1882	229	"
St. Paul Brush Electric Light Co	Sept.	16	1882	231	"
St. Paul Linseed Oil Co	Nov.	6	1882	241	"
Sauk Centre Southern Railway Co	Nov.	29	1882	251	"
Taylor's Falls Copper Mining Co	Dec.	25	1874	237	1
Taylor's Falls and Lake Superior Railroad Co	Feb.	18	1875	270	"
Taopi Farming Co	May	22	1875	281	"
Tribune Publishing Co	Nov.	13	1875	289	"
Turners' Building Association	Nov.	21	1877	369	"
Tube Well Co	May	12	1874	212	"
Turners' Building Association	July	1	1880	42	"
Tribune Printing Co	May	31	1882	195	2
Tabitha Society of the State of Minnesota	July	26	1882	219	"
Union Savings Bank of Rochester	Feb.	24	1868	104	1
Upper Mississippi Navigaton Co	Oct.	7	1874	231	"
Union Elevator Co.	Oct.	18	1880	60	2
Volkszeitung Printing and Publishing Co	Feb.	27	1880	16	"
Volkszeitung Printing and Publishing Co	Feb.	27	1880	17	"
Verndale, Shell City & Northern Railroad Co	Nov	16	1881	131	"
Van Hoven Live Stock Co	March	11	1882	167	"
Watab Gold and Silver Mining Co	Oct.	3	1867	102	1
Warsaw Steam Mills	Feb.	5	1868	104	"
Winona and Southwestern Railroad Co.	Feb.	28	1870	133	"
Winona, Mankato & New Ulm Railroad Co	Aug.	3	1870	14	"
Whitney Manufacturing Co	Feb.	1	1871	147	"
Whitney Reaper and Binder Co	Feb.	1	1871	147	"
Winona, Homer, Dresbach & LaCrescent Railroad	Feb.	27	1871	149	"

NAME OF INCORPORATION.	Date of Filing		Year.	Page.	Book.
Wells & Southwestern Railroad Co..........	July	24	1872	167	1
Winona Ferry Co..........................	June	17	1873	180	"
Winona Paper Barrel Co...................	Aug.	6	1874	226	"
West St Paul Building and Loan Association No. 1	Oct.	10	1874	232	"
Western Railroad Co. of Minnesota.......	Dec.	30	1874	237	"
Winona Carriage Works	July	19	1875	286	"
Winona & St. Peter Land Co..............	April	18	1876	306	"
Worthington & Sioux Falls Railroad Co....	June	23	1876	312	"
Winnebago & St. Paul Railroad Co.... ...	June	6	1877	371	"
Wilmina Silver Mining and Smelting Co....	Dec.	11	1877	376	"
Workingmen's Home Association....... ..	June	25	1878	426	"
West St. Paul Building Association No. 1 ..	March	24	1879	501	"
Warren Town Site Co........	Aug.	12	1879	4	2
Winona Mill Co..	Oct.	4	1879	8	"
Working People's Mutual Fund and Loaning Association.	Feb.	14	1880	14	"
Winona Rushford Wagon Co	Feb.	18	1880	15	"
Workingmen's Building and Loan Society..	May	21	1880	30	"
Western Elevator Co.........	Nov.	29	1880	65	"
Winona Rushford Wagon Co	Feb.	16	1881	77	"
Western Tramway Co.....................	March	9	1881	85	"
West St. Paul Building Association.........	April	16	1881	93	"
Winona Lumber Co.......................	April	23	1881	95	"
Worthington, Minnesota, Ice Co	Jan.	17	1882	146	"
Winona Plow Co...........	Jan.	25	1882	152	"
Wilton Manufacturing Co.	May	4	1882	184	"
Warren Manufacturing Co................	June	13	1882	204	"
West Side Land and Cottage Co	June	19	1882	208	"
Winona Building and Loan Association. ...	July	6	1882	211	"
Western Land Exchange..................	July	19	1882	215	"
Winona Mill Co. (amendment).	Sept.	21	1882	232	"
Wabasha Mill Co...	Oct.	30	1882	238	"
Wabasha Mill Co.........	Oct.	30	1882	239	"
West Publishing Co................... ...	Nov.	6	1882	242	"
Workingmen's Building and Loan Association of Crookston...	Nov.	16	1882	245	"
Waseca Manufacturing Co.................	Nov.	16	1882	246	"
Winona Machinery Co.	Nov.	21	1882	247	"
Youmans Brothers & Hodgins...	April	19	1877	344	1

ACCEPTANCES

OF

LEGISLATIVE ACTS

ON FILE IN SECRETARY OF STATE OFFICE NOVEMBER 30, 1882.

NAME.	Accepting Act of	Filed.	Recorded	
			Page.	Book.
Burlington, Cedar Rapids & Northern Railway Co.....	Sec. 2, Chap. III., 1873..	Mar. 19, 1879	505	1
Brownsville, by way of Caledonia, to Iowa State Line.	March 8, 1879...........	Oct. 20, 1879	4	2
Chamberlain, T......... ...	Act Railway Bonds... ...	Mar. 6, 1871	151	1
Chicago, M. & S. P. R.R. Co	Chap. III. Spec. Law 1873	Oct. 16, 1874	233	"
do	February 25, 1881........	April 5, 1881	34	2
do	do	June 8, 1881	39	"
do	do	Mar. 21, 1881	33	"
Caledonia & Miss. Ry. Co...	March 10, 1873..	Oct. 18, 1880	30	"
do	do	do	31	"
Chicago & Dakota R. R. Co.	do	Sept. 9, 1879	5	"
Chicago, Clinton, Dubuque & Minn. R. R. Co.... ...	do	Mar. 16, 1878	390	1
do	February 21, 1877........	do	390	"
do	"	Feb. 14, 1879	509	"
Chatfield R. R. Co.........	March 10, 1873....	Dec. 23, 1878	478	"
Chicago, St. Paul, Minneapolis & Omaha Ry. Co.....	February 11, 1881.......	May 10, 1881	37	2
do	do	do	37	"
do	do	do	37	"
Cedar Rapids, Iowa Falls & Northwestern Ry. Co.....	March 10, 1873..........	July 26, 1882	92	"
Chengwatonna Mining Co..	November 22, 1881.......	July 27, 1882	97	"
Duluth & Winnipeg R R. Co	March 9, 1878...........	Nov. 1, 1881	53	"
Duluth Street Ry. Co.......	November 17, 1881......	Dec. 8, 1881	54	"
Duluth Telephone Co	March 7, 1881...........	May 5, 1882	85	"

NAME.	Accepting Act of	Filed.	Recorded	
			Page.	Book.
Hastings, Minn. River & Red River of the North R R. Co	March 7, 1857	March 1857	......	..
do	March 3, 1866	Feb. 9, 1867	90	1
do	do	Mar. 13, 1867	......	..
do	February 26, 1857	April 1, 1867	......	..
do	March 3. 1866	do	......	..
do	March 9, 1857	do	.. ..	..
Hastings & Dakota R. R. Co	March 3, 1866	do	92	1
do	Extend. line for completion	April 8, 1876	303	"
do	February 8, 1878	April 1, 1878	405	"
Lake Superior & Mississippi R. R. Co	March 6, 1863	March 1863	51	"
do	May 5, 1864	Feb. 25, 1865	67	"
do	February 23, 1865	do	67	"
do	March 3, 1865	Mar. 28, 1865	68	"
do	March 4, 1875	May 3, 1875	279	"
do	March 5, 1875	do	279	"
do	Prop'n of Lewart&Shelden	July 3, 1865	......	..
do	March 8, 1861	July 10, 1873	......	..
Mississippi River Imp't & Manu'ft. Co	March 6, 1869	Mar. 29, 1869	116	"
Minnesota Western R. R. Co	February 26, 1855	Mar. 3, 1873	134	"
do	March 5, 1869	do	134	"
do	March 3, 1853	do	134	"
do	February 4, 1870	do	134	"
Mil. & St. Paul R. R Co	February 28, 1872	Mar. 9, 1872	162	"
Minn. & Pacific R. R. Co	May 22, 1857	May 27, 1857	......	..
do	March 9, 1858	June 3, 1858	29	"
do	Acceptance of Loan	June 3, 1858	28	"
Minn. & Cedar Val. R. R Co	May 22, 1857	... .	......	..
do	May 5, 1858	May 26, 1858	26	"
Minn. & St. Cloud R. R. Co.	February 23, 1864	Aug. 19, 1864	......	..
Merrill, D. D	March 8, 1878	Mar. 26, 1878	390	"
Minnesota Midland Ry. Co.	March 10, 1873	July 8, 1879	2	2
Minn., Fairbault & Cedar Valley R. R. Co	March 10, 1862	Mar. 16, 1864	52	1
Minnesota Valley R. R. Co.	March 4, 1864	April 9, 1864	53	"
do	March 10, 1873	Dec. 23, 1878	479	"
Minnesota Central R. R. Co.	May 23, 1857	April 23, 1858	......	..
Minnesota Railway Ex. Co.	March 11, 1879	June 7, 1879	531	"
Minnesota N. W. R. R. Co.	March 9, 1867	April 8, 1867	94	"
do	March 9, 1858	May 31, 1858	5	"
do	do	do	28	"
Minnesota Valley R. R. Co.	March 5, 1868	April 18, 1868	109	"
do	March 1, 1870	June 7, 1870	139	"
Mesaba Iron Co	November 22, 1881	July 10, 1882	91	2
N. W. Telegraph Co	Magnetic Telegraph	Mar. 3, 1865	70	1
Nebraska & Lake Superior R. R. Co	of Charter	Dec. 26, 1857	......	..
Northern Minn. R. R. Co	March 12, 1878	April 2, 1878	411	"
Northern Pacific R. R. Co	March 4 1870	June 1, 1870	......	..
Plainview R. R. Co	March 10, 1873	Dec. 23, 1878	480	"
Rochester & Northern Ry. Co	March 10, 1873	Dec. 23, 1878	481	"

NAME.	Accepting Act of	Filed.	Recorded	
			Page.	Book.
Root River Valley & Southern Minn. R. R. Co	May 22, 1857	May 23, 1857	...	..
Southern Minnesota R. R. Co	March 9, 1858	May 20, 1858	25	1
do	Sec. 10. Ar. 9, Cons'tution	May 14, 1858	...	..
do	February 16, 1865	Feb. 20, 1865	66	1
do	March 4, 1864	Feb. 25, 1865	66	"
do	March 2, 1865	Mar. 4, 1865	67	"
do	February 25, 1867	Mar. 21, 1867	91	"
do	March 6, 1878	April 26, 1878	415	"
do	March 11, 1879	June 7, 1879	531	"
do	Contract	Feb. 28, 1859	...	..
Southern Minn. Ry Extension Co	Chap. III. Sp. Law 1873	Feb. 10, 1879	488	1
Stillwater & St. P. R. R. Co.	March 4, 1867	Jan. 8, 1868	102	"
St. Anthony Falls Water Power Co	February 24, 1875	April 14, 1875	276	"
St. P. & Sioux City R. R. Co	Chap. III. 1873	May 9, 1881	35	2
do	March 1, 1870	June 7, 1870	139	1
St. Paul Mutual Fire and Marine Insurance Co	March 2, 1865	Mar. 15, 1865	68	"
St. Paul & Pacific R. R. Co.	do	Mar. 16, 1865	70	"
do	March 4, 1865	April 29, 1865	71	"
do	March 2, 1867	Mar. 20. 1867	90	"
St. Croix Ry. & Imp't Co	March 10, 1873	Mar. 22, 1873	177	"
St. Paul & Duluth R. R. Co.	February 14, 1879	Mar. 28, 1879	504	"
do	February 16, 1866	Mar. 13, 1879	506	"
do	March 7, 1878	do	506	"
St. Paul Union Depot Co	March 5, 1879	July 2, 1879	1	2
do	March 10, 1873	June 11, 1880	24	"
Seymour, Sabin & Co	March 11, 1878	Mar. 23, 1878	389	1
St. Paul, Minn. & Manitoba R. R. Co	March 7, 1881	Sept. 13, 1881	47	2
Taylor's Falls & L. Superior R. R. Co	Secs. 128, 129 Ch. II. 1878	Aug. 19, 1881	46	"
Transit R. R. Co	March 3, 1855	Jan. 25, 1856	...	..
do	May 22, 1857	May 28, 1857	...	..
do	March 3, 1857	do	...	..
do	March 9, 1858	May 26, 1858	26	1
do	do	May 31, 1858	27	"
Western Land Association	March 23, 1857	April 20, 1868	110	"
do	March 6. 1868	do	110	"
do	February 24, 1869	1869	124	"
Winona & La Crosse R. R. Co	February 25, 1856	Mar. 12, 1872	164	"
do	February 29, 1872	do	164	"
Winona & St. Peter R. R. Co	March 5, 1875	Mar. 27, 1875	275	"
Worthington & Sioux Falls R. R. Co	March 10, 1873	Feb. 24, 1877	311	"
West, John B. & Co	March 11, 1878	Mar. 14, 1878	389	"

RAILROAD ACCEPTANCES

ON FILE IN GOVERNOR'S OFFICE.

NAME.	Acceptances Act of	Filed.
Minnesota Central	March 10, 1862	December 29, 1862
Minnesota Central	Congress of March 3, 1865	September 27, 1867
St. Paul & Duluth	March 8, 1861	March 7, 1862
Southern Minnesota	March 4, 1864	March 29, 1864
Southern Minnesota	February 16, 1865	February 18, 1865
St. Paul & Pacific	March 6, 1863 & March 4, 1864	June, 1864
St. Paul & Pacific	March 1, 1866	August 13, 1866
St. Paul & Chicago	March 4, 1868	November 25, 1868
Western Railroad	March 1, 1877	May 2, 1877

INDEX TO BOOKS

OF

OFFICIAL LETTERS, COMMUNICATIONS AND RAILROAD LIENS.

APPOINTMENTS AND NOTICES OF ELECTION.	FILED.		RECORDED.	
	Date.	Year.	Page.	ook.
A.				
Able, Wm., appointed Agent State Board of Immigration	Nov. 24	1869	118	1
Averill, Jno. T. elected Rep. in Congress	Dec. 1	1870	142	"
Amstrong, D. W., appointed Inspector of State Prison	Oct. 20	1870	143	"
B.				
Blakely, D., appointed Secretary of State	Nov. 17	1862	31	"
Board of Examiners, to examine the several essays offered on the Minnescta Pamphlet	Aug. 2	1864	57	"
Barber, L., appointed Dist. Judge, 3d Dist.	Sept. 12	1864	59	"
Butters, R., appointed Trustee Minnesota Hospital for Insane	May 13	1867	94	"
Brown, C. T., appointed Trustee Minnesota Hospital for Insane	May 16	1867	95	"
Benedict, J. H., appointed Surveyor General of Logs 5th District	March 4	1870	135	"
Brown, L. M., appointed Judge 8th District	March 10	1870	137	"
Bryant C. S., appointed Regent State University	Aug. 18	1870	143	"
Back, H. S., appointed Agent to Locate University Lands	Aug. 29	1870	143	"
C				
Commissioners appointed to examine the Madelia State Road	June 9	1866	81	'

APPOINTMENTS AND NOTICES OF ELECTION.	FILED.			RECORDED.	
	Date.		Year.	Page.	Book.
Comman, L. R., appointed Inspector of State Prison	March	7	1867	89	1
Comb, M. D., appointed Surveyor Gen. of Logs and Lumber, 2d Dist.	Jan.	31	1868	111	"
Commissioners appointed to locate certain roads	April	20	1868	112	
Christensen, F. S., appointed Assistant Secretary of State	Feb.	10	1880	17	2
Christensen, F. S., appointed Assistant Secretary of State	Jan.	18	1882	78	"
Christensen, F. S., Resignation	June	16	1882	89	"
D.					
Donnelly, I., elected Represent. in Congress	Nov.	25	1862	37	1
Dunnell, M. H., appointed Supt of P. Instr.	March	3	1867	92	"
Dearborn, Luther, appointed Director Deaf and Dumb Institute	June	18	1869	119	"
Dunnell, M. H., elected Rep. in Congress	Dec.	1	1870	141	"
E.					
Edgerton, A. J., appointed R. R. Com	June	14	1871	155	"
Engberg, P., appointed Agent State Board of Immigration	Nov.	14	1869	116	"
F.					
Fletcher, Loring, appointed Trustee of Hospital for Insane	March	4	1870	135	"
Flower, M. D., appointed Adjutant General.	March	4	1870	135	"
G.					
Gillfillan, James, appointed Chief Justice Supreme Court	July	8	1869	120	"
Gillmore, G. M., appointed Director Deaf Dumb and Blind Institute	March	4	1870	135	"
Gibson, P., appointed Regent State Univ.	March	3	1871	150	"
Gillmore, G. M., appointed Deaf Dumb and Blind Inst	March	3	1871	150	"
Gaskill, J. R. M., appointed Inspector State Prison	March	3	1871	150	"
H.					
Hanson, P. H., appointed Immigration Agt. to collect and publish information for Imigrants	June	5	1869	118	"
Handcome, M. G., appointed District Judge 6th District	Sept.	22	1869	121	"
Hanscome, M. G., appointed Judge 9th Dist.	March	4	1870	137	"
Hjortsberg, V., appointed Clerk to Sec. State	June	14	1871	298	"
Hjortsberg, V., appointed Clerk to Sec. State	Jan.	3	1878	377	"
Hjortsberg, V., appointed Clerk to Sec. State	Jan.	10	1880	17	2

APPOINTMENTS AND NOTICES OF ELECTION.	FILED.			RECORDED.	
	Date.		Year.	Page.	Book.
I.					
Immigration Commissioners appointed, and their names	Jan.	19	1865	62	1
J.					
Jackson, H. A., appointed Warden State Prison	Sept.	19	1870	148	"
Jacobson, J. P., appointed Assistant Secretary of State	Jan.	28	1878	380	"
K.					
Kerr, A. H., Trust. Minn. Hospital for Insane	March	29	1866	81	"
Kerr. A. H., appointed Trustee Minnesota Hospital for Insane	May	28	1867	97	"
Kerr, Rev. A. W., appointed Trustee of Hospital for Insane	March	4	1870	135	"
L.					
Lane, James, appointed Surveyor General of Logs and Lumber, 1st Dist	Jan.	29	1868	111	"
M.					
McMillan, T. J. R., appointed Asst. Justice Supreme Court	June	27	1864	54	"
McClure, C., appointed Judge 1st Dis. Court	Aug.		1864	55	"
Mattson, H., appointed Immigration Agent.	July	7	1866	83	"
McKelvey, J., appointed District Judge 7th District	Aug.	1	1866	83	"
Mattson, H., appointed Member of Board of Immigration	Feb.	28	1867	86	"
Metcalf, T. M., appointed Asst. Sec. of State	May	7	1877	346	"
Malmros, Oscar, appointed Asst. Sec. of State	Sept.	21	1882	101	2
N.					
Nichols, J., appointed Regent State Univ.	March	3	1871	150	1
O.					
Otis, Geo. L., appointed Manager State Reform School	Jan.	17	1871	145	"
P.					
Pusey, P., appointed Asst. Secretary of State	Sept.	3	1862	21	"
Pusey, P., " " " " "	Sept.	3	1863	43	"
Pusey, P., " " " " "	Sept.	3	1864	58	"
Pusey, P., " " " " "	Sept.	2	1865	69	"

APPOINTMENTS AND NOTICES OF ELECTION.	FILED.			RECORDED.	
	Date.		Year.	Page.	Book.
Pusey, P., appointed Asst Secretary of State	Jan.	8	1866	76	1
Pusey, P., " " " " "	Jan.	8	1867	84	"
Pusey, P., " " " " "	Jan.	8	1868	103	"
Pusey, P., " " " " "	Jan.	8	1869	114	"
Pusey, P., " " " " "	Jan.	7	1871	145	"
Pillsbury, J. S., appointed Reg. State Univ.	March	8	1871	150	"
Phillips, J. B., appointed Asst. Sec. State...	Jan.	8	1876	292	"
Q.					
Quist, P. M., app'nted Vice Consul Denmark	April	10	1872	168	"
R.					
Rowland, Wm. T., appointed Commissioner to the Universal Expo. at Paris for 1867..	Sept.	24	1866	84	"
S.					
Sharp, A. T., appointed Surveyor General of Logs, 5th Dist	March	9	1866	80	"
Smith, Mrs. M. R. appointed State Librarian	April	1	1867	93	"
Strait, H. B. appointed Trustee Minnesota Hospital for Insane....................	May	21	1867	96	"
Schimmel, W., appointed Trustee Minnesota Hospital for Insane.......	May	27	1867	96	"
State Normal Board,—Notice of Election of Members of the.......................	March	3	1868	105	"
State University,—Notice of appointment of Regents of...........................	March	3	1868	105	"
Sibley, H. H., appointed member of Board of Regents..........................	Nov.	17	1868	114	"
Sibley, H. H., appointed Regent State University	March	4	1870	135	"
Smith Max, appointed State Librarian......	March	3	1871	150	"
Solberg, C. F., appointed Asst. Sec'y of State	March	6	1872	162	"
Sahlgaard, H., appointed Vice Consul for Sweden and Norway....................	Oct.	24	1871	166	"
Solberg, C. F., appointed Asst. Sec. of State.	Jan.	9	1874	194	"
T.					
Taylor, J., appoinment Warden State Prison	Jan.	8	1868	111	"
Thompson, E. J., appointed member of Board of Regents...........	May	16	1868	114	"
Thompson, H., appointed Director Deaf, Dumb and Blind Institute.......	March	4	1870	135	
Thompson, E. J., appointed Regent State University....................	March	4	1870	135	"
V					
Van Cleve, H. P., appt'd Warden State Pris.	March	4	1870	135	"

APPOINTMENTS AND NOTICES OF ELECTION.	FILED.		RECORDED.	
	Date.	Year.	Page.	Book.
W.				
Windom, Wm., elected Rep. in Congress ..	Nov. 25	1862	36	1
Wilson, T., appointed Asst. Justice Supreme Court	June 27	1864	54	"
Wilson, H., appointed Director of Minnesota Institution for the Deaf and Dumb	May 21	1864	112	"
Warfield, H., appointed Agent State Board of Immigration........................	May 14	1869	116	"
Webber, A. B., appointed Warden State Prison	March 10	1870	137	"
Windom, Wm., elected Senator of the U. S.	July 16	1870	143	"
Wilson, H. P., elected Supt. Pub. Instr	July 25	1870	143	"
Wilson, H. B., appointed State Supt. Public Instruction	March 3	1871	150	"
Williams, F., appointed consul North German Union	March 3	1871	153	"
COMMISSIONS.				
Name of Commissioners	....	1862	25	"
" " "	Sept. 15	1864	60	"
" " "	Sept. 12	1865	69	"
IMMIGRATION.				
Copy of advertisement about premium for production of the best essay on the advantages of Minnesota.	March 19	1864	56	"
Sept. 6, 1864. Copy of the report of Board of Examiners..........................	Sept. 6	1864	58	"
Oct. 11, 1864. Copy of advertisements for proposal for printing immigration pamphlets..................................	Oct. 11	1864	61	"
April 19, 1865. C. F. Solberg to Secretary of State about printing immigration pamphlets in Norwegian language......	April 19	1865	72	"
LETTERS AND NOTICES.				
Secretary of State to the Governor about State Seal	May 25	1858	1	"
The Governor's reply about the State Seal ..	May 25	1858	1	"
Secretary of State, acknowledgement of the receipt of plats of the U. S. Government roads from Mendota to Big Sioux River and from Fort Ripley to the road leading to the Red River of the North...........	June 1	1858	2	"
Secretary of State to the Governor about the custom to enroll acts of the legislature...	May 31	1858	2	"
Secretary of State, statement of expenses connected with his department for the year 1858............................	June 1	1858	3	"

APPOINTMENTS AND NOTICES OF ELECTION.	FILED.		RECORDED.	
	Date.	Year.	Page.	Book.
Secretary of State informs the Governor that there are several oaths of office of commissioner of deeds on file in the office of Secretary of State without any record of appointment	June 12	1858	3	"
State Printer notifies the Secretary of State that he is ready to print the debates and journals of the constitutional convention	June 2	1858	4	"
Secretary of State informs State Printer that no records of such debates and proceedings were upon file in his office	July 7	1858	4	"
State Printer asking Secretary permission to receive the manuscripts of the const. conv. from parties who have possession of them.	July 12	1858	4	"
Secretary of State authorizing State Printer to ask for and receive manuscripts	July 12	1858	5	"
Secretary of State to Attorney General	Aug. 14	1858	5	"
Supreme Court Report to Sec. of State	Aug. 24	1858	6	"
Sec. of State to the Speaker of the House of Representatives	Dec. 8	1859	8	"
Secretary of State to the Gov. about seals to the different courts	Dec. 14	1859	9	"
Supt. of Public Instr. to Sec. of State about seal	May 23	1860	12	"
Supt. of Public Instr. to Sec. of State about seal	May 24	1860	13	"
E. D. Neill to F. E. Snow	Dec. 30	1860	......	"
F. E. Snow to E D. Neill	Dec. 31	1860	15	"
W. H. Seward, Washington, to the Gov	May 19	1862	20	"
Gov. to W. H. Seward, Washington	May 26	1862	20	"
Soldiers to vote on the Gen'l Election, 1862.	Oct. 7	1862	25	"
Resignation of Secretary of State	Nov. 17	1862	31	"
President acknowledges the receipt, Oct. 10, 1862, of the concurrent resolutions of the legislature of the state of Minn., relating to the policy of the President	Oct. 10	1862	28	"
In reference to Insane persons in the state of Minnesota	Nov. 7	1862	29	"
Copy of notices to parties having charge of the insane persons	Nov. 7	1862	30	"
Notices about insane persons (from page 31 to 45)	Nov. 7	1862	31	"
Secretary of State notifies that proposals will be received for publication of certain laws in the Norwegian language	March 20	1862	22	"
Gen. W. Sweat to P. Pusey about printing envelopes to be used by soldiers in service when voting	Aug. 27	1863	45	"
Ed. M. Foley notifies Sec. of State of officers elected by the St. Cloud R. R. Co	Aug. 17	1864	55	"
The Board of Minn. State Examiners notified of meeting	Aug. 29	1864	57	"

APPOINTMENTS AND NOTICES OF ELECTION.	FILED. Date.	FILED. Year.	RECORDED. Page.	RECORDED. Book.
Notices of hearing of application for letters of administration	....	1871	158	1
C. G. Ripley to Governor, recommending E. J. Thompson as a member of Board of Regents	....	1868	113	“
Wm. H. Seward acknowledging receipt of a copy of joint resolution	....	1869	124	“
S. P. Jennison to Gen. M. D. Flower refusing payment for printing of blanks for use of the 1st Reg. M. N. G	....	1872	163	“
S. P. Jennison to C. D. Thuthill, A. S. Wellman and M. D. Underwood, about legislative act of incorp. village of Dodge Center	....	1874	222	“
Secretary of State from President of Senate, in regard to concurrent resolution, St. Croix and St. Louis Rivers	Feb. 1	1877	327	“
Notice of petition of the Minneapolis Eastern R. R. for appointment of commissioners	Jan. 13	1879	472	“
MEMORIALS AND JOINT RESOLUTIONS.				
For the year 1860 — when forwarded	....	......	9	“
“ “ “ 1861 “ “	....	......	16	“
“ “ “ 1862 “ “	....	......	23	“
“ “ “ 1863 “ “	....	......	40	“
“ “ “ 1864 “ “	....	......	47	“
“ “ “ 1865 “ “	....	......	64	“
“ “ “ 1865 “ “	....	......	74	“
“ “ “ 1866 “ “	....	......	76	“
“ “ “ 1867 “ “	....	......	85	“
“ “ “ 1868 “ “	....	......	103	“
“ “ “ 1869 “ “	....	......	115	“
“ “ “ 1870 “ “	....	......	130	“
“ “ “ 1871 “ “	....	......	148	“
Copy of joint resolution received from Wis.	Jan. 29	1869	125	“
MISCELLANEOUS.				
Minn. Valley R. R. Co., change of name to St. Paul & Sioux City R. R. Co.	June 7	1870	139	“
St. Paul & Dakota R. R., change of name to Worthington & Sioux Falls R. R. Co.	June 23	1876	312	“
Registration of R. R. bonds issued by the village of Minn. Lake	Sept. 17	1878	459	“
S. F. 117, recorded	Feb. 21	1879	491	“
Central R. R. Co. indebted to Aug. Johnson and others	April 13	1876	304	“
Sheriff sale of St. Paul Street Ry. Co	Nov. 16	1877	371	“
Proceedings, Dubuque & Minn. R. R. Co.	Feb. 8	1879	525	“
St. Paul & Duluth R. R. Co. locates the branch from main line to the navigable waters of St. Croix	July 8	1879	3	2
Declaration of J. A. Swezey and J. Dart	Dec. 19	1879	10	“

APPOINTMENTS AND NOTICES OF ELECTION.	FILED.			RECORDED.	
	Date.		Year.	Page.	Book.
MISCELLANEOUS.					
St. Paul & Minneapolis & Manitoba Ry. Co. resolution and map of branch from Carlisle to Red Lake River	June	10	1881	41	2
Supreme Court, State of Minnesota,—in the matter of the petition of St. P., M. & M. Ry. Co. to appropriate land	Aug.	10	1881	43	"
Decree — District Court to Dover Bank	Feb.	13	1882	79	"
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Minnesota Midland Ry. Co. to J. W. Remington	April	11	1878	414	"
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Minnesota Midland Ry. Co. to Cyrus R. Stone, civil engineer	Feb.	15	1878	9	"
Minn Midland Ry. Co., lien — M. Hanley	July	24	1878	428	1
Minn. Mid. Ry. Co., lien to J. K. Smith	Aug.	3	1878	429	"
" " " " Dennis Ryan	Aug.	3	1878	435	"
" " " " Dennis Ryan	Aug.	3	1878	441	"
" " " " John Gage	Aug.	13	1878	443	"
" " " " Joseph Odnick	Oct.	15	1878	463	"
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" " " " P. B. McDougall	May	7	1879	516	"
" " " " J. D. Barston	May	7	1879	518	"
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" " " " M. P. Lambert	May	7	1879	522	"
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Charles Harkens, lien to Silas J. Davis	June	7	1880	25	"
N. Pacific R. R. Co., lien to M. Miller	June	23	1880	27	"
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" " " E. W. Vaughn	Sept.	17	1881	51	"
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St. Paul. Minneapolis & Manitoba R'y Co. U. S. Circuit Court, Dist. of Minnesota. J. S. Wetmore et al, Trustees, vs. St. Paul & Pacific R. R. Co. et al. Certificate of sale	June 21	1879	52	"
St Paul. Minneapolis & Manitoba R'y Co. Organization papers. Trustees' conveyance under $15,000,000 mortgage	July 16	1879	58	"
St. Paul, Minneapolis & Manitoba R'y Co. to J. S. Kennedy, J. S. Barnes, J. A Roosevelt, Trustees, R. R. and land grant mortgage $8,000.000, dated June 21, 1879	July 1	1879	69	"
St. Paul. Minneapolis & Manitoba Ry. Co to J. S. Kennedy and S. Thorne, 2d mortgage, October 1, 1879	Oct. 31	1879	144	"
St. Paul. Minneapolis & Manitoba Ry. Co. J. S. Kennedy, J S. Barnes and J. A Rosevelt, as trustees to St. Paul Union Depot Co., release.....................	Feb. 9	1880	186	"

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St. Paul. Minneapolis & Manitoba Ry. Co. J. S. Kennedy and S. Thorne, trustees to St. Paul Union Depot Co., release	Feb. 9	1880	198	St.P.M&M
St. Paul, Minneapolis & Manitoba Ry. Co. J. S. Kennedy, J. S. Barnes and J. A Rosevelt, to C. Mil. & St. Paul Ry. Co., release	Feb. 9	1880	209	"
St. Paul. Minneapolis & Manitoba Ry. Co. J. S. Kennedy and S. Thorne, trustees, to C. M. & St. Paul Ry. Co., release	Feb. 9	1880	216	"
Stillwater & St. Paul R. R. Co. mortgage to S. M. Felton and Wm. G. Moorhead, amt. $400,000, Nov. 1, 1870	Jan. 7	1871	137	St.P.&D.A
St. Paul & Duluth R. R. Co., organization of	July 28	1877	263	"
St. Paul & Duluth R. R. Co., W. H. Rhawn, deed to	Dec. 26	1877	286	"
St. Paul & Sioux City R. R. Co., special land stock	Dec. 21	1875	1	Mort Land
St. Paul & Sioux City R. R. Co., consolidated preferred stock	Dec. 21	1875	31	"
St. Paul & Sioux City R. R Co., special stock, 4th series	Dec. 21	1875	61	"
St. Paul & Sioux City R. R., assignment of W. F. Davidson & Co. to Elias F. Drake, Aug. 1, 1868	June 4	1870	52	M. V.
St. Paul & Sioux City R. R. Co. Trust Deed to T. A. Scott, Nov. 15. 1870	Jan. 19	1871	53	"
St. Paul & Sioux City R. R. Co Agreement for issue of preferred stock, Nov. 15, 1870	Jan 19	1871	56	"
St. Paul & Sioux City R. R. Agreement for issuing special stock, Jan. 2, 1871	June 9	1871	65	"
St. Paul & Sioux City R. R Co. to Geo. I. Seeley and J. A. Stewart, Aug. 1, 1871...	Sept. 21	1871	74	"
St. Paul & Sioux City R. R. Co. Land Mortgage, Aug. 1, 1874.......	....	......	84	"
St. Paul & Sioux City R. R. Co. Letter of Att'y for H. Thompson, June 6, 1872 ...	Aug. 3	1872	95	"
St. Paul & Sioux City R. R. Jan. 1, 1873. Agreement for issue of special stock......	Jan. 25	1873	97	"
St. Paul & Sioux City R. R. Co. Certificate of retired stock, April 5, 1873.......	April 5	1873	104	"
St. Paul & Sioux City R. R. Agreement of issue of preferred stock, 4th series, Jan. 1, 1873	April 5	1873	105	"
St. Paul & Sioux City R. R. Co. Mortgage to Geo. H. MacKay and A. Iselin, Feb. 1, 1873	May 27	1873	112	"
St. Paul & Sioux City R. R. Co. Agreement for issue of preferred stock, 4th series, March 1, 1875.......	May 25	1875	121	"
St. Paul & Sioux City R. R. Co. Agreement of March 1, 1875, for issue of consolidated preferred stock.......	May 25	1875	128	"

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St. Paul & Sioux City R. R. Co. Sworn statement of president in regard 1st mortgage bonds	Sept.	23	1875	135	M. V.
St. Paul & Sioux City R. R. Co. Mortgage to T. A. Scott, March 1, 1875	Nov.	30	1875	137	"
St. Paul & Sioux City R R. Co., application of President to Chief Justice Gilfillan, Dec. 9, 1879	Dec.	12	1875	139	"
Answer of Chief Justice Gilfillan	Dec.	12	1875	141	"
St. Paul & Sioux City R. R. Co., petition of President to R. R. Nelson, Judge U. S. District Court	Dec.	12	1875	141	"
Judge Nelson's answer	Dec.	12	1875	143	"
St. Paul & Sioux City R. R. Co., trust deed to H. H. Sibley, June 1, 1876	June	3	1876	144	"
St. Paul & Sioux City R. R. Co., release of mortgage to G. H. Mackey and A. Iselin, dated February 1, 1873	May	19	1880	149	"
St. Paul, Stillwater & Taylor's Falls R. R. Co. to S. F. Hersey and H. Thompson, trustees, mortgage to, certificate of satisfaction	April	28	1880	476	Gen. R. 1
St. Paul, Minneapolis & Manitoba Ry. Co. and N. W. Kittson and J. J. Hill, J. P. Farley, viz.: Notice of Lis Pendens	July	6	1880	481	"
St. Paul, Minneapolis & Manitoba Ry. Co. to Central Trust Co. of N. Y trustees 1st mortgage Minn. & Dakota, $6,000,000, dated Nov. 1, 1880	Nov.	13	1880	82	Gen. R. 2
Southern Minnesota Ry. Co., satisfaction of mortgage, A. P. Man, H. H. Cammann and The Farmers Loan & Trust Co. to the S. M. Ry. Co	Dec.	4	1880	117	"
Southern Minnesota Ry. Co., satisfaction of mortgage, the Farmers Loan & Trust Co. to the S. M. Ry. Co	Dec.	4	1880	119	"
Southern Minnesota R'y Ext. Co. Deed to the Southern Minn R'y Co., Jan. 1, 1880	March	25	1881	200	"
Southern Minn. R'y Co. to Chicago, Milwaukee & St. Paul R'y Co., Deed, dated Jan. 1, 1880	March	25	1881	208	"
Southern Minn. R'y Co. Albon P. Man & Co., discharge of Mortgage	Sept.	13	1881	314	"
Southern Minn. R'y Ext. Co. Henry C. Kingsley and H. G. DeForest, Trustees. Satisfaction of Mortgage (State of Minnesota), dated Aug. 3, 1881	Nov.	11	1881	323	"
Southern Minn. R'y Co. Appointment of new Trustees; Peter M. Meyers, trustee 1st part, Julius Wadsworth, president, 2nd part. and John Johnston, 3d part	Nov.	16	1881	327	"
Southern Minn. R'y Co. Resignation of Trustees Albon P. Man, trustee 1st part, and Peter M. Myers, trustee 2d part	Nov.	16	1881	331	"

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	Date.	Year.		
Southern Minnesota R'y Co. Appointment of trustees: Albon P. Man, trustee 1st part, Julius Wadsworth, 2d part, and Peter M. Myers, 3d part	Nov. 16	1881	334	Gen R. 2
St. Paul & Sioux City R. R. Co. John A. Stewart and Geo. I. Seney, Release of Mortgage	Dec. 22	1880	150	M. V.
St. Paul & Sioux City R. R. Co. Resignation of Thomas A. Scott, Trustee, and appointment of Peter Berkey Trustee in place of T. A. Scott, resigned	April 12	1881	151	"
St. Paul & Sioux City R R. Co., appointment of J. S. Prince, trustee, in place of Charles Scheffer, deceased	April 13	1881	154	"
St. Paul & Sioux City R. R. Co., Peter Berkey, release	May 26	1881	156	"
St. Paul & Sioux City R. R. Co., burning of bonds	May 26	1881	162	"
St. Paul & Sioux City R. R. Co., John S. Prince, release	July 1	1881	163	"
St. Paul & Sioux City R. R. Co., release consolidated preferred stock, H. H. Sibley, trustee	July 1	1881	169	"
St. Paul & Sioux City R. R. Co., release of bonds of St. Paul & Sioux City Ry. Co to Barney & Smith Manuf. Co., H. H. Sibley trustee	July 1	1881	171	"
St. Paul & Sioux City R. R. Co., release C. Scheffer	July 1	1881	173	"
St. Paul & Sioux City R. R. Co., C. H. Bigelow, release	July 1	1881	176	"
St. Paul & Sioux City R. R. Co., certificate of destroyed bonds	July 2	1881	178	"
St. Paul & Sioux City R. R. Co., certificate of destroyed bonds	July 1	1881	179	"
St. Cloud & Lake Traverse Ry. Co, to St. Paul, Minneapolis & Manitoba Ry. Co., Deed	Nov. 10	1880	227	St.P.M&M
St. Paul, Minneapolis & Manitoba Ry. Co., mortgage of June 21, 1879, J. S. Kennedy and J. A. Rosevelt, trustees, and John S. Barnes to R. B Angus. Appointment of trustees in place of J. S. Barnes, (resigned) and transfer of trust	May 19	1880	230	"
St. Paul & Pacific R. R. Co., satisfaction of mortgage, $120,000	Nov. 7	1881	241	"
St. Paul & Duluth R. R. Co., trust deed	July 21	1881	295	St.P.&D.A
St. Paul & Pacific R. R. Co., land scrip	July 22	1878	269	St.P.&P.B
St. Paul & Pacific R. R. Co. and the corporation of the Stillwater & St. Paul R. R Co	Feb. 23	1867	36	B of Inc.
Srillwater & St. Paul R. R. Co. to Samuel M. Felton and W. G. Moorhead, trust deed	Jan. 7	1871	....	Original.

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St. Paul & Duluth and Chicago, Milwaukee & St. Paul Ry. Co., agreement between ..	June	6	1882	326	St P & D A
Stillwater & Hastings Ry Co. to Chicago, Milwaukee & St. Paul Ry. Co., deed.....	March	14	1882	368	Gen. R. 2
Stillwater & St. Paul R. R. Co., appointment of trustees and assignment of deed of trust..	June	22	1882	406	"
Taylor's Falls & Lake Superior R. R Co., mortgage	Oct.	7	1880	25	"
Worthington and Sioux Falls R. R. Co. Trust Deed to H. P. Upham, Indenture made July 1, 1876....................	June	23	1876	440	C.
Worthington & Sioux Falls R. R. Co. Trust Deed to John S. Prince, Indenture made July 1, 1876............	June	23	1876	451	"
Winona & St. Peter R. R. Co. Second Mortgage to Sam'l J. Tilden, am't $1,800,000..	Feb.	27	1868	19	Gen. R. 1
Western R. R. Co. of Minnesota. Appointment of Wm. S. Lane as Co. Trustee with Charlemagne Tower, under $1,000,000 Mortgage	Oct.	18	1881	315	Gen. R. 2
Western R. R. Co of Minnesota. Appointment of W S. Lane as Co. Trustee with Charlemagne Tower, under $500,000 Mortgage	Oct.	18	1881	319	"

OFFICIAL BONDS AND OATHS

ON FILE IN

SECRETARY OF STATE'S OFFICE

NOVEMBER 30, 1882.

NAME OF OFFICER.	NAME OF OFFICE.	WHEN FILED.		Page.	Book.
		Month	Year		
Armstrong G. W.	Treasurer	May 24	1858	6	A
Atwater, I.	Associate Judge Supreme Court	May 24	1858	7	“
Ames, A. E.	Director, Normal School	Aug. 16	1859	21	“
Armstrong, D. W.	Inspector, State Prison	Jan. 31	1861	30	“
Ames, A. E	Director, Normal School	May 18	1864	67	“
Austin, H	District Judge	Jan. 14	1865	79	“
Ames, W. L.	Agricultural College Board	May 22	1865	82	“
Arnold, W. J	Commissioner	Feb. 11	1865	83	“
Armstrong, T. H.	Lieutenant Governor	Jan. 8	1866	84	“
Armstrong, T. H.	“ “	Jan. 10	1868	101	“
Andrews, C. C	Director, Normal School	April 10	1868	111	“
Austin, H	Governor	Jan. 7	1870	123	“
Austin, G. W.	Director, Normal School	June 3	1873	172	“
Arctander, J. W	District Attorney, 12th District	March 14	1881	396	“
Arctander, J. W	“ “ “ “	Dec. 17	1881	16	B
Baasen, F.	Secretary of State	May 24	1858	2	A
Berry, C. H.	Attorney General	May 24	1858	3	“
Branson, L	Judge 6th District	May 1	1858	4	“
Bray, E. C.	Director, Normal School	Aug. 16	1859	21	“
Baker, J H.	Secretary of State	Jan. 2	1860	23	“
Baker, J. H.	“ “ “	Jan. 9	1861	32	“
Blakely, D.	“ “ “	Nov. 17	1862	38	“
Berkey, P.	Board of Auditors	March 2	1863	48	“
Bingham, H. L.	Commissioner	Sept. 23	1863	53	“
Blakely, D.	Secretary of State	Jan. 13	1864	57	“
Butler, L.	Commissioner	July 22	1864	69	“
Barney, A. H.	Director Winona & St. Peter. R. R	June 2	1864	70	“
Barber, L.	District Judge	Sept 20	1864	72	“
Brown, L. M	Commissioner	Sept. 15	1864	77	“
Brooks, J.	Agricultural College Board	May 22	1865	82	“
Ball, John	Commissioner	Feb. 11	1865	83	“
Buck, D.	Director, Normal School	Feb. 1	1866	88	“

NAME OF OFFICER.	NAME OF OFFICE.	WHEN FILED. Month	Year.	Page.	Book.
Barnes, N. F...........	Director, Normal School	Feb. 1	1866	88	A
Blood. S................	Trustee Hospital for Insane......	April 1	1866	90	"
Brown, C. T...........	" " " "	May 22	1867	98	"
Blodgett, H. F...... ...	Director, Normal School	March 3	1868	109	"
Brooks, J..	" " "	March 3	1868	109	"
Barnes, N. F..........	" " "	June 25	1869	123	"
Brown. Y..............	" " "	May 6	1871	145	"
Buck, D.	Director, Normal Board.........	Mar 11	1872	146	"
Batchelder, S..........	" " "	June 4	1872	156	"
Barto, A.	Lieutenant Governor............	Jan. 9	1874	183	"
Baker, E. L......	Trustee Soldiers Orphans.........	Mch. 24	1874	201	"
Brown, J. H...........	District Judge..................	Mch. 22	1875	247	"
Burt. D.................	Superintendent of Public Instr .	April 7	1875	251	"
Brown, L. M......... .	District Judge.................	Oct. 29	1875	260	"
Brown, J H...........	" "	Jan. 11	1876	266	"
Brooks, Thos...........	Treasurer Inebriate Asylum......	Aug. 23	1876	275	"
Baxter, L. L..	District Judge.................	Feb. 1	1876	266	"
Brooks, Thos...........	Treasurer Inebriate Asylum......	Mar. 22	1877	279	"
Burt, D................	Superintendent of Public Instr...	Jan. 11	1878	292	"
Berry, J. M.. --	Associate Justice	Jan. 9	1879	315	"
Bowler, J. M...........	Farmers Board of Trade	April 2	1879	327	"
Byers, J	" " " "	Sept. 1	1879	333	"
Bowler, J. M...........	" " " "	Sept. 2	1879	334	"
Baumbach, Fred. Von..	Secretary of State	Jan. 10	1880	340	"
Baumbach, Fred. Von..	" " "	Jan. 5	1882	18	B
Baker, J. H......... ..	Rail Road Commissioner	Jan. 9	1882	19	"
Braden, W. W.........	State Auditor	Jan. 16	1882	33	"
Baldwin, H. D..........	Judge 9th District...............	April 8	1882	48	"
Cole, L.....	District Attorney, 3d District	May 14	1858	8	A
Cole, G. E.............	Attorney General...............	Jan. 2	1860	23	"
Crary, B. F......... ..	Superintendent of Public Instr...	July 15	1861	31	"
Cole, G E.............	Attorney General	Jan. 9	1862	33	"
Cole, G. E......... ..	" "	Jan. 13	1864	58	"
Cameron, G. M.........	Commmissioner	Feb. 11	1865	83	"
Colville. W..	Attorney General...............	Jan. 8	1866	85	"
Commann, L. R........	Inspector State Prison	April 3	1867	94	"
Cornell, F. R. E........	Attorney General...............	Jan. 4	1868	102	"
Cleveland, G. K........	Trustee Soldiers Orphans.........	Sept. 13	1869	116	"
Cornell, F. R E........	Attorney General..........	Jan. 7	1870	125	"
Chatfield. A. G....	District Judge..................	Jan. 6	1871	142	"
Cornell, F. R. E........	Associate Justice	Jan. 11	1875	236	"
Castle, H. A...	Adjutant General...............	Nov. 1	1875	261	"
Cnute, R.	Regent........................	May 17	1877	288	"
Cox, E. St. Julien......	District Judge.....	Jan. 11	1878	292	"
Christensen, F. S......	Assistant Secretary of State	Feb. 10	1880	348	"
Clark, G....	Judge Supreme Court...........	Mar. 14	1881	404	"
Christensen. F. S.	Assistant Secretary of State	Jan. 18	1882	35	B
Dunbar, W. F.........	State Auditor	May 28	1858	5	A
Donnelly, Ingn.........	Lieutenant Governor............	Jan. 2	1860	22	"
Donnelly, Ingn.........	" "	Jan. 9	1862	32	"
Donohue, M...........	Board of Auditors..............	Oct. 16	1862	44	"
Donohue, M.	" " "	Feb. 27	1863	47	"
Dunn, A..............	Commissioner..................	Sept. 22	1863	51	"

NAME OF OFFICER.	NAME OF OFFICE.	WHEN FILED.		Page.	Book.
		Month	Year.		
Daniels, J. V.	Commissioner	Sept. 23	1863	51	A
Dean, W. B.	“	Sept. 23	1863	52	“
Davis, R. R.	Deputy Warden	Feb. 23	1864	62	“
Dunn, A. C.	Commissioner	Sept. 15	1864	75	“
Daniels, J. V.	Trustee Hospital for Insane	April 5	1866	90	“
Densmore, O.	“ “ “ “	May 23	1866	91	“
Dunnell, M. H.	Superintendent of Public Instr.	April 3	1867	94	“
Dunnell, M. H.	“ “ “ “	M'ch 31	1869	114	“
Davis, R. R.	Deputy Warden	M'ch 17	1870	132	“
Davis, C. K.	Governor	Jan. 9	1874	183	“
Dike, E. W.	Treasurer	Jan. 9	1874	184	“
Dickinson, D. A.	District Judge	Jan. 4	1875	237	“
Dickinson, D. A.	“ “	Feb. 2	1875	246	“
Dickinson, D. A.	Justice Supreme Court	June 27	1881	1	B
Dickinson, D. A.	Justice Supreme Court	Jan. 9	1882	20	“
Emmett, L	Chief Justice Supreme Court	May 24	1858	7	A
Evans, D. C.	Commissioner	Oct. 13	1862	42	“
Eames, H. H.	Geologist	April 18	1865	81	“
Edgerton, A. J.	Rail Road Commissioner	June 19	1871	144	“
Edgerton, A. J.	“ “ “	June 4	1873	173	“
Edgerton, A. J.	“ “ “	M'ch 17	1874	193	“
Evenson, E.	Farmers Board of Trade	Sept. 2	1879	335	“
Evenson, E.	“ “ “ “	Jan. 31	1882	39	B
Flandrau, C. E.	Judge Supreme Court	July 1	1858	8	A
Forstall, T.	Inspector State Prison	Aug. 31	1858	13	‘
Ford, J. D.	Director Normal School	Aug. 16	1859	21	‘‘
Foss, Z. H.	Inspector State Prison	Oct. 5	1863	39	‘
Frost, D. H.	Director Normal School	May 18	1864	67	“
Flagg, S. D.	Trustee Hospital for Insane	Apri 5	1866	90	“
Flower, M. D.	Adjutant General	March 9	1870	130	“
Furber, S. W.	Farmers Board of Trade	April 2	1879	326	“
Farmer, J. D	District Judge	Dec. 16	1879	337	“
Francis, T. D.	Farmers Board of Trade	Sept. 7	1880	364	“
Gibbs, J. L.	Commissioner	Sept 15	1864	76	A
Gilbert, G. W.	“	Sept. 15	1864	77	“
Guiteau, K. N.	Agricultural College Board	May 22	1865	82	“
Goodwin, L. F.	Librarian	M'ch 20	1865	81	“
Gaskill, J. L.	Commissioner	Feb. 11	1865	83	“
Gaskill, J. R. M.	Inspector State Prison	April 1	1868	111	“
Gage, G. M.	Director Normal School	June 3	1873	171	“
Gilfillan, J.	Chief Justice	M'ch 10	1875	246	“
Gilfillan, J.	“ “	Jan. 7	1876	265	“
Gould, O. B.	Trustee Soldiers Orphans	April 9	1878	312	“
Giles, G.	Farmers Board of Trade	Sept. 5	1879	332	“
Gillman, C. A.	Lieutenant Governor	Jan. 22	1880	348	“
Gillman, C. A.	“ “	Jan. 11	1882	17	B
Giles, Geo.	Farmers Board of Trade	Feb. 1	1882	39	“
Hall, J.	Judge 4th District	May 27	1858	6	A
Holcombe, W.	Lieutenant Governor	May 24	1858	7	“
Heard, I. V. D.	Attorney, 2d District	May 24	1858	11	“
Hewson, S.	State Binder	Feb. 5	1859	20	“
Holcombe, W.	Director, Normal School	Aug. 16	1859	21	“
Hall, S. W.	Commissioner	Oct. 9	1862	40	“

NAME OF OFFICER.	NAME OF OFFICE.	WHEN FILED.			Page.	Book.
		Month		Year.		
Hunt, J. B.	Commissioner	Sept.	25	1863	53	A
Hanchell, A. H.	Geologist	July	18	1864	69	"
Hoyt, Jesse	Director Winona & St. Peter R. R.	June	22	1864	70	"
Hoyt, N. S.	" " " "	June	22	1864	70	"
Hoyt, A. M.	" " " "	June	22	1864	70	"
Harmon, A.	Commissioner	Sept.	15	1864	75	"
Hill, H.	Agricultural College Board	May	22	1865	82	"
Hollister, E.	Commissioner	Sept.	14	1865	84	"
Huster, H.	Commissioner	Feb.	11	1865	83	"
Hubbard, L. F.	Comm. to adjust Rail Road bonds	April	5	1866	91	"
Hough, S.	Clerk Supreme Court	Jan.	14	1867	92	"
Hough, S	" " "	Jan.	7	1870	125	"
Hanscome, M. G.	District Judge	Jan.	13	1871	127	"
Hamlin, E. O.	Director Normal School	Mar.	2	1870	129	"
Hicks, H. G.	Trustee Soldiers Orphans	April	2	1872	149	"
Hough, S.	Clerk Supreme Court	Jan.	15	1873	157	"
Hicks, H. G.	Trustee Soldiers Orphans	April	15	1875	52	"
Hoffman, J. K.	Oil Inspector	Mar.	11	1876	269	"
Hoffman, J. K.	" "	April	1	1876	270	"
Hall, Abe	Deputy Warden	May	19	1876	272	"
Hessing, A.	District Judge	Feb.	27	1877	279	"
Hall, Abe	Deputy Warden	Feb.	19	1878	302	"
Hoffman, J. K.	Oil Inspector	Mar.	12	1878	307	"
Hoyt, L.	Farmers Board of Trade	Sept.	2	1879	334	"
Hoffman, J. K.	Oil Inspector	Jan.	28	1881	393	"
Hahn, W. J.	Attorney General	Mar.	12	1881	400	"
Hall, Abram	Deputy Warden	Feb.	26	1881	410	"
Hubbard, L. F.	Governor	Jan.	9	1882	17	B
Hahn, W. J.	Attorney General	Jan.	5	1882	19	"
Hoyt, L.	Farmers Board of Trade	Jan.	31	1882	39	"
Hickman, A. C.	Director Normal School	Sept.	6	1882	5	"
Ienks, G. A.	Commissioner	Oct.	11	1862	41	A
Irgens, J. S.	Secretary of State	Jan.	8	1876	262	"
Irgens, J. S.	" "	Jan.	11	1878	292	"
Jackman, H. A.	Inspector State Prison	Mar.	16	1863	38	"
Johnston, Alex.	Commissioner	Sept.	9	1865	83	"
Jackman, H. H.	Warden	Sept.	27	1870	140	"
Jennison, S. P.	Secretary of State	Jan.	9	1874	183	"
Jacobson, J. P.	Assistant Secretary of State	Jan.	28	1878	295	"
Jewett, W. P.	State Land Agent	Aug.	15	1881	4	B
Kidder, J. P.	Commissioner	Sept.	21	1863	50	A
Kerr, A. H.	Trustee Hospital for Insane	April	5	1866	90	"
Kennedy, E. H.	Trustee Soldiers Orphans	April	13	186	121	"
Kiehle, D. L.	Director Normal School	June	3	1873	171	"
Kiehle, D. L.	" " "	May	14	1875	254	"
Kittelson, C.	State Treasurer	Jan.	10	1880	339	"
Knox, H. M.	Public Examiner	May	1	1878	313	"
Kiehle, D. L.	Superintendent of Public Instr.	Aug.	31	1881	5	B
Kittelson, C.	State Treasurer	Jan.	9	1882	1	"
Knox, H. M.	Public Examiner	May	10	1882	50	"
Lawrence, J. R.	Attorney 4th District	May	24	1858	6	A
Lemicke, R.	Inspector State Prison	Jan.	23	1860	26	"
Ludden, J. D.	" " "	Feb.	7	1862	36	"
Lewis, A.	Commissioner	Oct.	10	1862	40	"

NAME OF OFFICER.	NAME OF OFFICE.	WHEN FILED.				
		Month		Year.	Page.	Book.
Latham, C. F.	Director Winona & St. Peter R. R	June	2	1864	70	A
Langley, D. F.	Commissioner	Feb.	11	1865	83	"
Lowell, B. A.	Agricultural College Board	June	26	1867	99	"
Loomis, H.	Deputy Warden	Nov.	2	1870	142	"
Lamphrey, M.	Regent	Mar.	16	1874	191	"
Lamphrey, M.	"	May	17	1877	288	"
Lord, S.	District Judge	Jan.	9	1879	316	"
Loring, L.	Farmers Board of Trade	Oct.	8	1879	336	"
Lochren, Wm.	Judge 4th District	Nov.	22	1881	12	B
McMillan, S. J. R.	Judge 1st District	May	4	1858	4	A
McCluer, Wm. M.	Attorney 1st District	May	24	1858	5	"
McCullough, J. J.	Assistant Secretary of State	July	14	1858	8	"
McIlrath, C.	State Auditor	Jan.	12	1861	28	"
McCluer, W. M.	Inspector State Prison	Jan.	10	1861	30	"
McMurtrie, E.	Commissioner	Oct.	3	1863	54	"
McIlrath, C.	State Auditor	Jan.	13	1864	57	"
McMillan, S. J. R.	Associate Justice	July	5	1864	69	"
McCluer, W. M.	Board of Auditors	Mar.	2	1863	49	"
McMaster, S. Y.	Commissioner	Dec.	24	1864	78	"
McCluer, W. M.	Inspector State Prison	Feb.	3	1865	79	"
McIlrath, C.	State Auditor	Mar.	12	1867	93	"
McMaster. S. Y.	Director Normal School	May	2	1868	111	"
McIlrath, C.	State Auditor	Jan.	7	1870	124	"
McMaster, S. Y.	Director Normal School	Mar.	8	1870	129	"
McGill, A R.	Insurance Commissioner	Dec.	8	1873	1 2	"
McMillan, S. J. R.	Chief Justice	April	7	1874	203	"
McMillan, S. J. R.	" "	Jan.	11	1875	235	"
McGill, A. R.	Insurance Commissioner	Mar.	20	1878	310	"
McCluer, W. M.	Judge 1st District	Dec.	9	1881	13	B
McGill, A. R.	Insurance Commissioner	Feb.	1	1881	14	"
McBroom, J.	Farmers Board of Trade	Jan.	31	1882	39	"
Morrell, D.	Commissioner	Oct.	15	1862	42	A
Miller, S.	Governor	Jan.	13	1864	56	"
Murphy, J. H.	Commissioner	April	9	1864	65	"
Miller, Luke.	"	June	11	1864	68	"
Mann, T. T.	Agricultural College Board	May	22	1865	82	"
Marshall, W. R.	Governor	Jan.	8	1866	84	"
Mattson, H.	Member of Immigration	Mar.	15	1867	94	"
Marshall, W. R	Governor	Jan.	10	1868	100	"
Munch, E.	State Treasurer	Jan.	10	1868	101	"
Mattson, H.	Secretary of State	Jan.	7	1870	124	"
Munch, E.	State Treasurer	Jan.	7	1870	125	"
Maine, M. P.	Deputy Warden	Sept.	8	1870	138	"
Mitchell, W.	District Judge	Jan.	10	1874	185	"
Marshall, W. R.	Rail Road Commissioner	Mar.	16	1874	191	"
Marshall, W. R.	" "	Jan.	8	1876	262	"
Marshall. W. R.	" "	Jan.	11	1878	292	"
Metcalf, T. M.	Assistant Secretary of State	May	7	1877	281	"
Mitchell, W. B.	Director Normal School	May	15	1877	282	"
Marshall, W. R.	Rail Road Commissioner	Jan.	10	1880	339	"
Mitchell, Wm.	District Judge	Jan.	5	1881	391	"
Mitchell, W.	Justice Supreme Court	Mar.	14	1881	403	"
Mitchell, Wm.	Justice Supreme Court	Jan.	4	1882	21	B
Malmros, Oscar.	Assistant Secretary of State	Sept.	21	1882	54	"

NAME OF OFFICER	NAME OF OFFICE.	WHEN FILED.		Page.	Book.
		Month	Year.		
Noah, J. J	Clerk Supreme Court	May 17	1858	1	A
Noyes, F. W	Inspector State Prison	Aug 17	1858	12	“
Noyes, F. W	“ “ “	April 29	1859	21	“
Nicols, John	Comm. to adjust R. R. bonds	April 5	1866	91	“
Nicols, John	Regent	Mar. 9	1868	110	“
Niles, S	Director Normal School	June 3	1873	172	“
Niles, S	“ “ “	May 14	1875	254	“
Nichols, S. H	Clerk Supreme Court	Jan. 8	1876	262	“
Nichols, S. H	“ “ “	Jan. 9	1879	317	“
Niles, S	Farmers Board of Trade	May 13	1879	329	“
Nichols, W. A	Deputy Clerk Supreme Court	Feb. 28	1881	399	“
Norrish, J. F	Inspector State Prison	Sept. 23	1881	6	B
Nichols. S. H	Clerk Supreme Court	Jan. 4	1882	21	“
Oakes, G. H	Librarian	May 2	1864	67	A
Palmer, E. C	Judge 2d district	May 24	1858	5	“
Parsons, O	Inspector State Prison	Aug. 18	1858	12	“
Proctor, J. S	Warden	Jan. 26	1860	27	“
Proctor, J. S	“	Feb. 5	1862	35	“
Pusey, P	Assistant Secretary of State	Sept. 3	1862	38	“
Pusey, P	“ “ “ “	Sept 3	1863	39	“
Potter, G. F	Clerk Supreme Court	Jan. 13	1864	58	“
Proctor. J. S	Warden	Feb. 23	1864	61	“
Pusey, P	Assistant Secretary of State	Sept. 3	1864	71	“
Porter. J. J	Commissioner	Sept 15	1864	73	“
Parker, F	“	Sept. 15	1864	74	“
Pusey. P	Assistant Secretary of State	Sept. 2	1865	82	“
Pusey, P	“ “ “ “	Jan. 8	1866	86	“
Proctor, J. S	Warden	Jan. 29	1866	88	“
Prescott, G. W	Director Normal School	Feb. 1	1866	88	“
Pusey, P	Assistant Secretary of State	Jan. 8	1867	91	“
Pusey. P	“ “ “	Jan. 8	1868	103	“
Parker, H. I	Director Normal School	May 5	1868	112	“
Pusey, P	Assistant Secretary of State	Jan. 8	1869	113	“
Pettibone, H. D	Trustee, Soldiers Orphans	April 13	1869	115	“
Pusey, P	Assistant Secretary of State	Jan. 7	1870	126	“
Porter, E. D. B	Director Normal School	Feb. 12	1870	128	“
Pusey, P	Assistant Secretary of State	Jan.	1871	145	“
Pitcher, O. O	Director Normal School	Dec. 22	1875	261	“
Pillsbury, J. S	Governor	Jan. 8	1876	262	“
Pfaender, W	State Treasurer	Jan. 8	1876	262	“
Phillips, J. B	Assistant Secretary of State	Jan. 8	1876	262	“
Pitcher, O. O	Director Normal School	May 16	1877	282	“
Pillsbury, J. S	Governor	Jan. 11	1878	292	“
Pfaender. W	State Treasurer	Jan. 11	1878	292	“
Purcell, T	Farmers' Board of Trade	Sept. 2	1879	331	“
Price, J. T	“ “ “	Sept. 2	1879	332	“
Puge, Z. B	“ “ “	Oct. 7	1879	333	“
Peterson, O	“ “ “	Sept. 2	1879	335	“
Pillsbury. J. S	Governor	Jan. 12	1880	338	“
Purcell, Thomas	Farmers' Board of Trade	Jan. 31	1882	38	B
Ramsey, Alex	Governor	Jan. 2	1860	22	A
Ramsey, Alex	“	Jan. 9	1862	32	“
Reynolds. C. G	Board of Auditors	Oct. 20	1862	46	“
Rogers, H. C	Secretary of State	Jan. 8	1866	85	“

NAME OF OFFICER.	NAME OF OFFICE.	WHEN FILED.		Page.	Book.
		Month	Year.		
Rice, C. S	Commissioner	Feb. 11	1865	83	A
Rogers, H. C	Secretary of State	Jan. 10	1868	101	"
Ripley, C. G	Chief Justice	Jan 7	1870	123	"
Randall, J. J	Railroad Commissioner	M'ch 24	1874	200	"
Reed, J. A	Warden	Aug. 25	1874	218	"
Randall, J. J	Railroad Commissioner	April 7	1875	250	"
Reed, J. A	Warden	Aug. 15	1876	275	"
Reed, J. A	Warden	Jan. 30	1878	301	"
Reed, J. A	Warden	Jan. 20	1881	397	"
Sibley, H. H	Governor	May 24	1858	2	"
Setzer, H. N	Warden	Aug. 13	1858	12	"
Snow, F. E	Ass't Secretary of State	Jan. 3	1860	21	"
Scheffer, C	State Treasurer	Jan. 2	1860	23	"
Snow, F. E	Ass't Secretary of State	Jan. 1	1861	27	"
Scheffer, C	State Treasurer	Feb. 5	1862	33	"
Swift, H. A	Governor	July 10	1863	39	"
Sweet, G. W	Commissioner	Oct. 13	1862	41	"
Snow, S	Commissioner	Sept. 22	1863	50	"
Stone, M. B	Commissioner	Sept. 23	1863	52	"
Stevens, J. H	Commissioner	Sept. 26	1863	54	"
Sherwood, C. D	Lieutenant Governor	Jan. 13	1864	56	"
Scheffer, C	Treasurer	Jan. 13	1864	57	"
Smith, DeWitt C	Librarian	Jan. 16	1864	58	"
Smith, A	Director Winona & St. Peter R. R.	Sept. 19	1864	72	"
Smith, A	Commissioner	Sept. 15	1864	74	"
Sperry, C. B	Commissioner	Sept. 15	1864	76	"
Scheffer, C	State Treasurer	Jan. 8	1866	85	"
Smith, M. R	Librarian	April 1	1867	100	"
Simpson, Thos	Director of Normal School	Feb. 21	1868	108	"
Sprague, J. W	Trustee Sold. Orph	April 15	1869	118	"
Sanders, E. C	Trustee Sold. Orph	Feb. 3	1871	143	"
Sweeney, W. W	Member of Normal School	May 6	1871	145	"
Solberg, C. F	Ass't Secretary of State	March 7	1872	146	"
Sweeney, W. W	Director of Normal School	M'ch 13	1872	146	"
Simpson, T	Director of Normal School	M'ch 18	1872	147	"
Smith, J. G	Director of Normal School	April 1	1873	159	"
Simpson, Thos	Director of Normal School	June 3	1873	171	"
Smith, J. G	Director of Normal School	June 3	1873	172	"
Shaw, J. C	Librarian	May 15	1873	175	"
Solberg, C. F	Ass't Secretary of State	Feb. 4	1874	186	"
Sibley, H. H	Member of Normal School	Jan. 27	1874	187	"
Sibley, H. H	President of Normal School	Jan. 27	1874	187	"
Stearns, O. P	District Judge	April 23	1874	204	"
Stearns, O. P	District Judge	Jan. 14	1875	236	"
Shaw, J. C	Librarian	April 1	1875	249	"
Sibley, H H	Director of Normal School	May 14	1875	254	"
Simpson, Thos	Director of Normal School	May 7	1877	281	"
Start, C. M	Attorney General	Jan. 9	1880	338	"
Scofield, J. D	Member Farmers Board of Trade	Oct. 16	1880	364	"
Start, C. M	Judge of District Court	M'ch 15	1881	407	"
Severance, M. J	Judge of 6th District	June 27	1881	2	B
Stearns, O. P	Judge of 11th District	Jan. 6	1882	24	"
Start, C. M	Judge of 3d District	Jan. 12	1882	24	"

NAME OF OFFICER.	NAME OF OFFICE.	WHEN FILED.			Page.	Book.
		Month		Year		
Shaw, J. M	Judge 4th District	Jan.	14	1882	25	B
Severance, M. J	Judge 6th District	Jan.	16	1882	32	"
Taylor, J. W	Director Normal School	Jan.	9	1860	31	A
Thorne, J. L	Trustee Hospital Insane	Mar.	29	1866	90	"
Turtellotte, J. E	Com. to adjust R. R. Bonds	April	5	1866	91	"
Taylor, J. L	Warden	Feb.	4	1868	108	"
Thayer, S. R	Member Normal School	Mar.	1	1870	129	"
Tolman, M. C.	Director Normal School	Mar.	13	1872	146	"
Taylor, W. H. H	Librarian	Aug.	13	1877	291	"
Van Vorhes, A J	Clerk Supreme Court	Jan.	14	1861	29	"
Van Cleve, H. P	Trustee Soldiers' Orphans	April	13	1869	120	"
Vanderburgh, C. E	District Judge	Jan.	14	1874	184	"
Vanderburgh, C. E	Justice Supreme Court	Jan.	12	1882	20	B
Wilson, Thos	Associate Justice	July	6	1864	68	A
Warner, C. A	Commissioner	Sept.	15	1864	73	"
Webber, J. V	"	Feb.	7	1865	80	"
Wood, W. H	"	Feb.	11	1865	83	"
West, J. E	Trustee Soldiers' Orphans	April	13	1869	122	"
Waite, F. H	District Judge	Jan.	10	1870	127	"
Webber, A. B	Warden	Mar.	14	1870	131	"
Wilson, H. B	Sup't Public Instruction	July	30	1870	132	"
Wilson, H. B	" " "	May	5	1871	144	"
Whitcomb, O. P	State Auditor	Jan.	13	1873	156	"
Wilson, H. B	Sup't Public Instruction	April	1	1873	158	"
Wilson, G. P	Attorney General	Jan.	9	1874	184	"
Wright, G. W. T	Director Normal School	Feb.	24	1874	190	"
Woolfolk, A. C	District Judge	Oct.	1	1874	221	"
Whitcomb, O. P	State Auditor	Jan.	8	1876	262	"
Wilson, G. P	Attorney General	Jan.	8	1876	262	"
Wright, G. W. T	Director Normal School.	Mar.	15	1876	270	"
Wakefield, J. B	Lieutenant Governor	Jan.	11	1878	292	"
Wilson, G. P	Attorney General	Jan.	15	1878	295	"
Wilkin, W	District Judge	Jan.	17	1879	316	"
Whitcomb, O. P	State Auditor	Jan.	13	1879	318	"
Wright, G. W. T	Farmers' Board of Trade	May	13	1879	328	"
Webb, Jr., W	" " "	Sept.	2	1879	330	"
Yale, W	Lieutenant Governor	Jan.	7	1870	124	"
Young, Geo. B	Associate Justice	April	16	1874	204	"
Young, Geo. B	Rep. Supreme Court	June	16	1875	257	"
Young, A. H	District Judge	Jan.	2	1878	293	"
BONDS.						
Armstrong, G. W	Treasurer	Sept.	1	1858	13	A
Allis, L	Trustee Minn. Savings Bank	May	24	1867	97	"
Austin, G. W	Director Normal School	Feb.	7	1874	188	"
Arctander, J. W	Attorney 12th District	Mar.	14	1881	405	"
Arctander, J. W	" " "	Jan.	5	1882	22	B
Berry, C. H	Attorney General	Nov.	2	1858	14	A
Berkey, P	Board of Auditors	Mar.	2	1863	47	"
Batchelder, G. F	Commissioner	April	22	1863	49	"
Barron, H. E	Director D. D. & B	Jan.	8	1868	113	"
Bell, J. E	Trustee Hennepin Co. Sav. Bank	Sept.	2	1870	132	"

NAME OF OFFICER.	NAME OF OFFICE.	WHEN FILED.		Page.	Book.
		Month	Year.		
Bell, D. C	Trustee Hennepin Co. Sav. Bank	Sept 2	1870	135	A
Bronson, D.	Trustee Stillwater Savings Bank	April 18	1873	165	“
Brill, H. R	Trustee St. Paul Savings Bank	April 24	1873	170	“
Baker, E. L	Trustee Soldiers' Orphans	M'ch 24	1874	199	“
Barber, R. D	“ “ “	M'ch 28	1874	201	“
Brooks, E. W	Trustee Goodhue Savings Bank	Jan. 25	1875	242	“
Butler, L.	Trustee Farm. & Mech. Sav. Bank	June 2	1875	255	“
Brooks, Thos	Treasurer Inebriate Asylum	May 16	1876	272	“
Brooks, Thos	“ “ “	M'ch 19	1877	277	“
Baker, J. H	R. R. Commissioner	Jan. 14	1882	30	B
Braden, W. W	State Auditor	Feb. 9	1882	40	“
Cole, G. E	Attorney General	Jan. 2	1860	25	A
Cole, G. E	“ “	Jan. 18	1862	34	“
Cole, G. E	“ “	Jan. 13	1864	55	“
Colville, W	“ “	Jan. 8	1866	86	“
Clark, J. B	Trustee Rochester Bank	Feb. 1	1868	104	“
Cleveland, G. K	Trustee Soldiers' Orphans	Sept. 13	1869	115	“
Clark, J. H	Trustee Hennepin Co. Sav. Bank	Sept. 2	1870	137	“
Castle, H. A	Trustee Soldiers' Orphans	April 4	1871	144	“
Cannor, H. W	Trustee Stillwater Savings Bank	April 18	1873	167	“
Curtis, H. E	Trustee Winona Savings Bank	Aug. 11	1874	208	“
Camp, C. J	“ “ “ “	Aug. 11	1874	215	“
Chandler, W	Trustee Farm. & Mech. Sav. Bank	Oct. 10	1874	232	“
Chanson, C.	Trustee Goodhue Co. Sav. Bank	Jan. 25	1875	238	“
Chandler, W	Trustee Farm. & Mech. Sav. Bank	June 10	1875	256	“
Chute, R	Trustee Treasurer Regents	Jan. 17	1880	349	“
Chandler, Wm	Trustee Sav. Bank of Minneapolis	Oct. 12	1880	377	“
Cannon R. Manuf. Asso.	Land Grant	Oct. 20	1881	7	B
Dunbar, W. F	State Auditor	Aug. 3	1858	8	A
Donohue, M	Board of Auditors	Oct. 16	1862	44	“
Donohue, M	“ “	Feb. 27	1863	46	“
Donaldson, R. S	Treasurer Agricultural College	July 15	1867	99	“
Daniels, M. J	Treasurer Rochester Savings Bank	Feb. 1	1868	106	“
Daniels, J. V	“ “ “ “	Feb. 1	1868	106	“
Davis, R. R	Deputy Warden	M'ch 17	1870	131	“
Dike, E. W	State Treasurer	April 1	1873	159	“
Dike, E. W	“ “	Jan. 10	1874	185	“
Dike, E. W	“ “	M'ch 20	1874	195	“
Dike, E. W	“ “	Oct. 1	1873	219	“
Drake, E. F	Director St. Paul Savings Bank	July 9	1877	289	“
DeLaitter, J	Trustee Savings Bank	Nov. 26	1880	387	“
Davison, R. A	Treasurer University	Jan. 7	1882	26	B
Ellison L	Trustee St. Croix Savings Bank	Dec. 17	1873	179	A
Edgerton, A. J	R. R. Commissioner	M'ch 18	1874	193	“
Ellison, Smith	Trustee St. Croix Savings Bank	Feb. 21	1880	350	“
Farries, I	Trustee Duluth Savings Bank	May 10	1872	155	“
Featherstone, W	Trustee Goodhue Co. Sav. Bank	Jan. 25	1875	241	“
Gates, D. N	Chief Clerk Auditor	Aug. 12	1858	10	“
Goodrich, E. S	State Printer	Nov. 13	1858	15	“
Goodrich, E. S	State Printer	Sept. 20	1858	18	“
Goodwin, L. F	Librarian	April 18	1865	81	“
Gibson, P	Trustee Regents University	April 29	1874	205	“
Gibson, P	Trustee Farm. & Mech. Bank	Oct. 10	1874	229	“

NAME OF OFFICER.	NAME OF OFFICE.	WHEN FILED.		Page.	Book.
		Month	Year.		
Gould, O. B	Trustee Soldiers' Orphans	April 9	1878	310	A
Hanchett, A. H	Geologist	Aug. 31	1864	71	“
Hough, S	Clerk Supreme Court	Jan. 14	1867	92	“
Hicks, H. G	Trustee Soldiers' Orphans	April 13	1869	118	“
Hough, S	Clerk Supreme Court	Jan. 15	1870	128	“
Harris, A. L	Trustee Hennepin Co. Sav. Bank	Sept. 2	1870	136	“
Hicks, H. G	Trustee Soldiers' Orphans	April 2	1872	148	“
Hunter, J. C	Trustee Duluth Savings Bank	May 11	1872	151	“
Hough, S	Clerk Supreme Court	Jan. 15	1873	158	“
Hospes, L	Trustee St. Croix Savings Bank	Dec. 17	1873	17	“
Hoyt, F. W	Trustee Goodhue Co. Sav. Bank	Jan. 25	1875	240	“
Hoard, J. S	“ “ “ “ “	Jan. 25	1875	245	“
Hicks, H. G	Trustee Soldiers' Orphans	April 15	1875	251	“
Hoffman, J. K	Oil Inspector	Mar. 11	1876	268	“
Hall, Abe	Deputy Warden	May 16	1876	271	“
Hall, Abe	“ “	Feb. 19	1878	302	“
Hoffman, J. K	Oil Inspector	Mar. 12	1878	307	“
Hospes, L	Trustee St. Croix Savings Bank	Mar. 23	1880	354	“
Hoffman, J. K	Oil Inspector	Jan. 28	1881	394	“
Hall, Abram	Deputy Warden	Feb. 26	1881	408	“
Jones, E. S	Trustee Hennepin County Bank	Sept. 2	1870	133	“
Jackman, H. A	Warden	Sept. 27	1870	139	“
Jackman, H. A	“	Mar. 23	1874	198	“
Johnson, J. W	Trustee Savings Bank	Nov. 26	1880	385	“
Jewett, Wm. P	State Land Agent	Aug. 15	1881	3	B
Kennedy, E. N	Trustee Soldiers' Orphans	April 13	1869	120	A
Knox, H. M	Public Examiner	May 2	1878	313	“
Kittelson, Chas	State Treasurer	Jan. 9	1880	343	“
Kittelson, Chas	“ “	Mar. 9	1882	43	B
Kenyon, M. D	Auditor's Chief Clerk	Jan. 25	1882	36	“
Knox, H. M	Public Examiner	May 10	1882	49	“
Loomis, H	Deputy Warden	Nov. 16	1870	141	A
Laird, W. H	Trustee Winona Bank	Aug. 11	1874	214	“
Lowry, F	Trustee Farm. & Mech. Sav. Bank	Oct. 10	1874	224	“
Lowry, F	“ “ “ “ “	Nov. 26	1880	381	“
Langdon, R. B	“ “ “ “ “	Nov. 26	1880	379	“
Lee, Wm. H	Trustee Hennepin Co. Sav. Bank	Nov. 4	1882	55	B
McIlrath, C	State Auditor	Jan. 12	1861	28	A
McIlrath, C	Board of Auditors	Oct. 8	1862	43	“
McClure, W. M	“ “	Mar. 2	1863	48	“
McIlrath, C	State Auditor	Feb. 17	1864	61	“
McIlrath, C	“ “	Mar. 12	1867	93	“
McIlrath, C	Trustee Minn. Savings Bank	May 24	1867	95	“
McGill, A. R	Insurance Commissioner	Dec. 18	1873	182	“
McReeve, C	Trustee Farmers and Mech. Bank	Oct. 10	1874	227	“
McLennan, W. L	Trustee Duluth Savings Bank	Nov. 30	1874	233	“
McLennan, W. L	“ “ “ “	Nov. 30	1874	234	“
McFarland, A. R	“ “ “ “	Aug. 4	1875	258	“
McDougall, C. P	“ “ “ “	Feb. 14	1876	267	“
McGill, A. R	Insurance Commissioner	Mar. 20	1878	309	“
McGill, A. R	“ “	Feb. 1	1881	14	B
Merriam, O. C	Regent	Mar. 16	1864	63	A
Mott, R. A	Treasurer D. D. & B	April 9	1864	65	“
Marshall, W. R	Trustee Minn. Saving Association	May 24	1867	96	“

NAME OF OFFICER.	NAME OF OFFICE.	WHEN FILED.		Page.	Book.
		Month	Year.		
Munch, E.	Treasurer	Jan. 11	1868	102	A
Munch, E.	“	Jan. 7	1870	126	“
Maine, M. P.	Deputy Warden	Sept. 8	1870	138	“
Marvin, L.	Trustee, Duluth Savings Bank	May 11	1872	149	“
Morford, R. H.	“ “ “ “	May 11	1872	152	“
Marshall, W. R.	R. R. Commissioner	Mar. 16	1874	192	“
Mitchell, W.	Trustee, Winona Savings Bank	Aug. 11	1874	212	“
Moulton, E. H.	Trustee, Farm & Mech. Bank	Oct. 13	1874	223	“
Morrison, C.	“ “ “ “	Oct. 10	1874	226	“
Mulford, A. D.	“ “ “ “	Oct. 10	1874	228	“
Mitchell, W. B.	Director Normal School	May 16	1877	283	“
Marshall, W. R.	R. R. Commissioner	Jan. 28	1878	299	“
Marshall, W. R.	“ “	Jan. 10	1880	341	“
Morrison, C.	Trustee Savings Bank	Nov. 26	1880	369	“
Moulton, E. H.	“ “ “	Nov. 26	1880	389	“
Noah, J. J.	Clerk Supreme Court	May 17	1858	1	“
Nichols, J.	Regent	Mar. 16	1864	64	“
Nichols, J.	Trustee University	April 14	1864	66	“
Norton, M. G.	Treasurer Normal Board	May 24	1867	95	“
Nichols, J	Regent	Mar. 9	1868	110	“
Nichols, S. H.	Clerk Supreme Court	Jan. 17	1879	319	“
Nelson, C. N.	Trustee, St. Croix Savings Bank	Mar. 23	1880	358	“
Nichols, S. H.	Clerk Supreme Court	Jan. 11	1882	29	B
Oakes, G. H.	Librarian	June 7	1864	67	A
Olds, T. F.	Trustee, Rochester Bank	Feb. 1	1868	103	“
Proctor, J. S.	Warden	Jan. 14	1860	26	“
Proctor, J. S.	“	Feb. 5	1862	35	“
Potter, G. F.	Clerk Supreme Court	Jan. 12	1864	55	“
Pillsbury, J. S.	Regent	Mar. 16	1864	64	“
Proctor, J. S.	Warden	Mar. 8	1866	88	“
Prince, J. S	Trustee, Minn. Savings Associ'n.	May 24	1867	96	“
Pillsbury, J. S.	President Regents	July 28	1868	112	“
Pettibone. H. D.	Trustee, Soldiers Orphans	April 13	1869	114	“
Perkins, H. E.	Trustee, Goodhue Co. Bank	Aug. 5	1875	259	“
Pfaender, W.	Treasurer	Jan. 11	1876	263	“
Pitcher, O. O.	Director Normal School	April 27	1877	280	“
Pitcher, O. O	“ “ “	May 16	1877	284	“
Pfaender, W.	Treasurer	Jan. 30	1878	296	“
Pillsbury, J. S.	Trustee, Farm & Mech. Bank	Dec. 23	1878	320	“
Presley, B.	Trustee, Saving Bank of St. Paul	May 20	1880	360	“
Pillsbury, Geo. A.	Trustee, Hennepin Co. Sav. Bank.	June 7	1880	362	“
Prince, J. S.	Trustee, Savings Bank	Nov. 13	1880	367	“
Pillsbury, J. S	“ “ “	Nov. 26	1880	383	“
Reynolds, C. G.	Board of Auditors	Oct. 20	1862	45	“
Randall, J. J.	R. R. Commissioner	Mar. 19	1874	194	“
Reed, J. A.	Warden	July 30	1874	206	“
Rising. F. A.	Trustee, Winona Savings Bank	Aug. 11	1874	210	“
Randall, J. J.	R. R. Commissioner	Mar. 22	1875	247	“
Reed, J. A.	Warden	Aug. 10	1876	274	“
Reed, J. A.	“	Jan. 30	1878	304	“
Reed, J. A.	“	Feb. 14	1881	397	“
Sitzer, H. N.	“	Aug. 16	1858	11	“
Scheffer, C.	Treasurer	Jan. 1	1860	24	“
Scheffer, C.	“	Jan, 1	1862	37	“

NAME OF OFFICER.	NAME OF OFFICE.	WHEN FILED.			Page.	Book.
		Month		Year.		
cheffer, C	Treasurer	Jan.	25	1864	60	A
mith, DeWitt C.	Librarian	Jan.	20	1864	59	"
Scheffer, C.	Treasurer	Jan.	8	1866	87	"
Sibley, H. H	Trustee Minn. Savings Asso	May	24	1867	98	"
Smith, M. R	Librarian	Jan.	10	1867	100	"
Smith, A	Trustee Rochester Savings Bank.	Feb.	1	1868	105	"
Sprague, J. W	Trustee Sold. Orphans	April	13	1869	117	"
Sanders, E. C	" " "	Feb.	3	1871	143	"
Seip, A. N.	" Duluth Savings Bank	May	10	1872	153	"
Staples, J. E	" Stillwater Savings Bank.	April	18	1873	160	"
Staples, I.	" " " "	April	18	1873	161	"
Sabin, D. M	" " " "	April	18	1873	163	"
Sahlgaard, H	" St. Paul Savings Bank	June	4	1873	178	"
Schlenk, J. E	" St. Croix " "	Dec.	17	1873	176	"
Sabin. J. H	" " " " "	Dec.	17	1873	177	"
Scheffer, C.	" " " " "	Dec.	17	1873	181	"
Shaw, J. C.	Librarian	June	7	1873	174	"
Smith, J. G.	Director of Normal School	Feb.	7	1874	187	"
Simpson, Tho	" " "	Feb.	7	1874	189	"
Seeger, Ths.	Treasurer	Jan.	5	1872	218	"
Sheldon, T. B	Trustee Goodhue Co. Sav. Bank	Jan.	25	1875	243	"
Shaw, J. C.	Librarian	April	1	1875	249	"
Simpson, Ths	Director of Normal School	May	16	1877	286	"
Skiles, T. D.	Trustee Farm's. & Mech's. Bank.	Dec.	23	1877	322	"
Seymour, F. A	Trustee St. Croix V. Sav. Bank	M'ch	23	1880	352	"
Sahlgaard, H	Trustee Savings Bank	Aug.	25	1880	365	"
Skiels, M. D	" " "	Nov.	26	1880	371	"
Seymour, Sabin & Co.	Contract with State of Minnesota	M'ch	12	1881	401	"
Sibley, H. H	Regent	Jan.	27	1881	392	"
Stees, J. A.	Trustee St. Paul Savings Bank	July	28	1882	51	B
Taylor, J. L.	Warden	Feb.	4	1868	107	A
Torinus, L. E.	Trustee Stillwater Bank	April	18	1873	164	"
Taylor, W. H. H	Librarian	Aug.	13	1877	290	"
Taylor, W. H. H	"	Jan.	24	1878	305	"
Toralson, A.	Trustee Hennepin Co. Sav. Bank.	Nov.	22	1882	57	B
Van Vorhes, A. J	Clerk of Supreme Court	Jan.	14	1861	29	A
Van Cleve, H. P.	Trustee Sold. Orphas	April	13	1869	119	"
Whitney, W. N	Chief Clerk, Auditor	June	14	1861	31	"
Webber, J. V	Commissioner	Feb.	7	1865	80	"
Wilson, H	Treasurer, D. D. & B.	M'ch	29	1866	89	"
West, J. E.	Trustee Sold. Orphans	April	13	1869	121	"
Wilson, H.	Treasurer, D. D. & B.	June	25	1869	122	"
Webber, A. B	Warden	M'ch	14	1870	130	"
Williams, W.	Trustee Stillwater Savings Bank.	April	18	1873	168	"
West, J. E.	Trustee Sold. Orphas	M'ch	26	1872	147	"
Whitcomb, O. P.	Auditor	Jan.	13	1872	157	"
Wright, G. W. T.	Director of Normal School	April	5	1874	202	"
Williams, W. W	Deputy Warden	Aug.	4	1874	206	"
Wilson, Thos	Trustee Winona Savings Bank	Aug.	11	1874	209	"
Wells, H. T.	Trustee Farm'rs & Mech's Bank	Oct.	10	1874	222	"
Westfall, W. T.	" " " "	Oct.	10	1874	231	"
Wichman, W.	Trustee Goodhue Co. Sav. Bank	Jan.	8	1875	237	"
West, J. E.	Trustee Sold. Orphans	April	29	1875	253	"

NAME OF OFFICER.	NAME OF OFFICE.	WHEN FILED.				
		Month		Year.	Page.	Book.
Whitcomb, O. P........	Auditor....	Sept.	5	1876	276	A
Whitcomb, O. P........	"	Jan.	7	1879	347	"
Westing, H.............	Trustee St. Croix Savings Bank..	Mar.	23	1880	356	"
Wells, T....	Trustee Savings Bank...........	Nov.	26	1880	373	"
West Publishing Co....	State Printer....................	Mar.	30	1881	11	B
Youmans, E. T.........	Trustee Winona Bank..........	Aug.	11	1874	213	A
Young, G. B...........	Reporter Supreme Court	June	16	1875	257	"
Young, W.............	Trustee Farm. & Mech. Bank ...	Dec.	23	1878	324	"
Young, W.............	" " " "	Nov.	26	1880	375	"

PRINTING.

The Commissioners of Printing advertised for proposals to do the public printing for the year commencing November 1st, 1882, as provided by Chapter 5 of the General Statutes of 1878. Annexed is a schedule of the contract as awarded by the Commissioners of Printing:

Class of Work.	NAME OF CONTRACTOR.	Per cent. discount from maximum rates.
1st.....	J. W. Cunningham................	60
2d......	J. W. Cunningham................................	50
3d......	Lewis Harrison...	55
4th.....	J. W. Cunningham............	56
5th.....	Lewis Harrison..................................	85

PRINTING PAPER AND STATIONERY.

Annexed are schedules of the contracts for printing paper and stationery for the use of the State. The contract for printing paper was awarded to Averill, Russell & Carpenter, and the contract for stationery to T. S. White Stationery Co., they being the lowest bidders.

BOOK PAPER.

700	Reams	Book S. & C., 25x38, 50 lb., white, per pound	$0 06.82
300	"	" S. & S. C., 25x38, 60 lb., tint. per pound	0 08.10
160	"	20 lb. Folio Post, second class, per pound	11
25	"	25 lb. Colored Medium Tea, per ream	2 00
40	"	35 lb. " " " " "	2 80
120	"	24 lb. Folio Post, first class, per pound	13¼
150	"	16 lb. Flat Cap, first class, " "	13¼
25	"	32 lb. Double Cap, first class " "	13¼
200	"	12 lb. Flat Cap, engine sized, No. 1, per pound	9
10	"	36 lb. Medium, first class, per pound	13¼

STATIONERY.

75	Reams	Abstract Legal Cap, American linen, numbered lines, 18 lb., per ream	$3 00
10	Reams	Foolscap, 14 lb., per ream	2 00
15	M	American Linen Letter Heads, ¼ sheets, 13 lb., folio red ruling, per M	1 40
10	Reams	14 lb. Letter Paper, white, first quality, per ream	2 00
50	M	Sheets 14 lb. Letter Heads, white, first quality, per M	2 00
30	M	Sheets 8 lb. Packet Note Heads, first quality, per M	1 10
10	Reams	8 lb. Packet Note, full sheets	1 00
100	M	No. 6½ White Envelopes, best quality, xxx high cut Gov., per M	1 30
50	M	No. 9 White Envelopes, best quality, xxx high cut Gov., per M	2 00
15	M	No. 10 White Envelopes, best quality, xxx high cut Gov., per M	2 25
10	M	No. 11 White Envelopes, best quality, xxx high cut Gov., per M	2 40
10	M	No. 6½ Manilla Envelopes, high cut, 36 lb., per M	55
10	M	No. 10 Manilla Envelopes, high cut, 36 lb., per M	95
5	M	No. 6½ Envelopes, yellow, high cut, best quality, per M	1 50
50	Gross	Steel Pens, No. 92, Esterbrook, per gross	25
20	"	" " " 14, Bank, " "	25
20	"	" " " 130, Easy Writer, " "	80
15	"	" " " 792, Esterbrook, " "	80
10	"	" " Glacinum, No. 1 to 9 inclusive	90
5	"	" " Spencerian, No. 6, per gross	75
5	"	" " " " 9, " "	75
6	Doz.	Faber's Hard Rubber Penholders, No. 30 per doz	1 20
6	"	" " " " " 50 " "	2 00

5	Gross Faber's Penholders, No. 2,592, natural, per gross	$1 25
3	Doz. Boxes Congress Quill Pens, per doz	4 80
20	Quarts Mucilage, Carter's flint glass, wire corkscrew, per quart	40
1	Gross Round Gilt Lead Pencils, Dixon's crucible, V. H., per gross	1 93
3	“ “ “ “ “ “ “ H., “ “	1 99
5	“ “ “ “ “ “ “ M., “ “	1 93
40	“ “ “ “ “ “ “ S. M., “ “	1 93
15	“ “ “ “ “ “ “ S., “ “	1 93
60	Gross Rubber Bands, No. 11, Faber, per gross	5
100	“ “ “ “ 31⅛ “ “ “	30
10	“ “ “ “ 000½ “ “ “	98
10	“ “ “ “ 0000½ “ “ “	1 06
25	Doz. Ink and Pencil Erasers, small, Faber, per doz	90
10	“ “ “ “ “ mammoth “ “ “	1 10
10	“ Red and Blue Pencils, Faber, Hex, 7-inch, gilt, per doz	50
10	“ Arnold's Writing Fluid, 8 oz. per doz	84
15	“ “ “ “ 4 oz. “ “	45
3	“ Heinish Bankers' Shears, first quality, 11-inch, per doz	10 00
10 M	McGill's Paper Fasteners, round heads, No. 1, per M	2 60
5 M	McGill's Paper Fasteners, round heads, No. 2, per M	2 60
5 M	McGill's Paper Fasteners, round heads, No. 3, per M	3 00
6	Doz. Ivory Folders, Congress, 10-inch, per doz	4 50
50	Gross Blotting Pads, 4x9½, 120 lb., Parker's Treasury, yellow, per gross	60
2	Reams Blotting Paper, 19x24, 120 lb., Parker's Treasury, yellow, per ream	19 50
25	Doz. Willow Paper Baskets, Zinn & Co., No. 20—4, per doz	7 00
10	Doz. Boxes Gold Seals, No. 17, fine spur, per doz	2 75
50	“ Scratch Books, No. 4,068, per doz	1 75
20	“ “ “ “ 106, “ “	50
5	“ Crimson Ink, 2 oz., glass stops, per doz	1 25
5	“ Carter's Mucilage Reservoir stands, 10 oz., empty, per doz	3 00
25	“ Perfect Mucilage, per doz	1 50
15	“ Flat Inkstands, 3½-inch, per doz	60
20	“ Pasteboard Clip, cap size, side clip nickle, per doz	2 50
10	“ Steel Knife Erasers, No. 18,149, ebony, per doz	2 25
4	Reams Red Express Wrapping Paper, per ream	4 00
5	Doz. Flat Rubber Rulers, 18-inch, per doz	2 00
2	“ Flexible “ “ “ “ “	3 00
2	“ Ruling Pens, Faber's, No. 120 “ “	13 00
5	“ McGill's Hand-Punchers, per doz	1 40
1	Gross Thumb Tacks, No. 181, per gross	2 25
3	“ Rubber Tipped Pencils, Eagle office, round, No. 2, per gross	3 50
18	Doz. Magic Binders, Sisson's, No. 13, per doz	12 00

Attached to this report is the report of Warden of the State Prison and the report of the Inspector of Oils to this department.

Also a list of county officers for 1883, Commissioners of Deeds, Notaries Public in commission, a list of Commissioners of Deeds of other States residing in this State.

All of which is respectfully submitted.

FRED. VON BAUMBACH,
Secretary of State.

APPENDIX.

LIST OF COUNTY OFFICERS

IN THE SEVERAL ORGANIZED COUNTIES OF THE STATE OF MINNESOTA, FOR THE YEAR 1883.

AITKIN COUNTY.

County Seat, Aitkin.

Office.	Incumbent.	Term of Office.	Commencement of Term.	
Auditor	D. J. Knox	Two years.	March	1, 1883
Treasurer	R. M. Hungerford	"	March	1, 1883
Sheriff	J. M. Markham	"	January	1, 1883
Register of Deeds	S. S. Luther	"	January	1, 1883
Judge of Probate	J. W. Wakefield	"	January	1, 1883
Attorney	G. W. Holland	"	January	1, 1883
Surveyor	J. Marston	"	January	1, 1883
Coroner	C. E. Haines	"	January	1, 1883
Clerk District Court	S. S. Luther	Four years.	January	1, 1883
Superintendent of Schools	F. E. Krecn	Two years.	December	1, 1882

ANOKA COUNTY.

County Seat, Anoka.

Office.	Incumbent.	Term of Office.	Commencement of Term.	
Auditor	George Geddes	Two years.	March	1, 1883
Treasurer	C. S. Guderian	"	March	1, 1882
Sheriff	James C. Frost	"	January	1, 1883
Register of Deeds	C. D. Green	"	January	1, 1882
Judge of Probate	J. M. Woods	"	January	1, 1883
Attorney	David L. Bugbee	"	January	1, 1883
Surveyor	A. H. Reed	"	January	1, 1882
Coroner	A. W. Giddings	"	January	1, 1882
Clerk District Court	George W. Church	Four years.	January	1, 1882
Court Commissioner	Hiram Thornton	Three years.	January	1, 1882
Superintendent of Schools	George D. Goodrich	Two years.	December	1, 1881

BECKER COUNTY.

County Seat, Detroit.

Office.	Incumbent.	Term of Office.	Commencement of Term.
Auditor	A. H. Wilcox	Two years.	March 1, 1882
Treasurer	M. E. Dahl	"	March 1, 1882
Sheriff	J. H. Phinney	"	January 1, 1882
Register of Deeds	Hans Hanson	"	January 1, 1882
Judge of Probate	J. H. Sutherland	"	January 1, 1883
Attorney	Walter Drew	"	January 1, 1882
Surveyor	C. H. Sturtevant	"	January 1, 1883
Coroner	Hans Hanson	"	January 1, 1883
Clerk of District Court	W. J. Morrow	Four years.	January 1, 1880
Court Commissioner	C. W. Dix	Three years.	January 1, 1882
Superintendent of Schools	G. L. Jones	Two years.	December 1, 1882

BENTON COUUNTY.

County Seat, Sauk Rapids.

Auditor	John Renard	Two years.	March 1, 1883
Treasurer	S. N. Wright	"	March 1, 1882
Sheriff	Richard Cronk	"	January 1, 1882
Register of Deeds	Wayland Miller	"	January 1, 1882
Judge of Probate	Philip Beaupre	"	January 1, 1882
Attorney	John A. Senn	"	January 1, 1882
Surveyor	H. Oltman	"	January 1, 1883
Coroner	Abner St. Cyr	"	January 1, 1883
Clerk District Court	S. P. Carpenter	Four years.	January 1, 1879
Court Commissioner	Justus Carpenter	Three years.	January 1, 1882
Superintendent of Schools	J. A. Senn	Two years.	December 1, 1881

BIG STONE COUNTY.

County Seat, Ortonville.

Auditor	C. H. Mero	Two years.	March 1, 1882
Treasurer	Ole Bolstad	"	March 1, 1882
Sheriff	A. E. Randall	"	January 1, 1882
Register of Deeds	John McCollum	"	January 1, 1882
Judge of Probate	S. D. Kemerer	"	January 1, 1881
Attorney	T. M. Grant	"	January 1, 1882
Surveyor	R. H. Chapman	"	January 1, 1882
Coroner	George McMurphy	"	January 1, 1882
Clerk District Court	B. Dassel	Four years.	January 1, 1882
Court Commissioner	G. W. Parker	Three years.	January 1, 1882
Superintendent of Schools	W. R. Brown	Two years.	December 1, 1881

BLUE EARTH COUNTY.

County Seat, Mankato.

Auditor	T. Scattergood	Two years.	March 1, 1883
Treasurer	W. Jones	"	March 1, 1882
Sheriff	George Monks	"	January 1, 1882
Register of Deeds	Jacob Wagon	"	January 1, 1882
Judge of Probate	George W. Mead	"	January 1, 1883
Attorney	E. P. Freeman	"	January 1, 1883
Surveyor	John Lilly	"	January 1, 1882
Coroner	Benjamin Durkee	"	January 1, 1883
Clerk District Court	W. C. Durkee	Four years.	January 1, 1882
Court Commissioner	F. W. Muff	Three years.	January 1, 1883
Superintendent of Schools	Edwin Rodgers	Two years.	December 1, 1881

BROWN COUNTY.

County Seat, New Ulm.

Office.	Incumbent.	Term of Office.	Commencement of Term.
Auditor	Henry B. Constans	Two years.	March 1, 188
Treasurer	Fr. Schiebert	“	March 1, 1883
Sheriff	Edward Casey	“	January 1, 1882
Register of Deeds	A. F. Walton	“	January 1, 1883
Judge of Probate	Ernst Brandt	“	January 1, 1883
Attorney	Francis Baasen	“	January 1, 1883
Surveyor	Julius Berndt	“	January 1, 1883
Coroner	Jonas Laudenschlaeger	“	January 1, 1883
Clerk District Court	Albert Blanchard	Four years.	January 1, 1883
Court Commissioner	E. G. Koch	Three years.	January 1, 1883
Superintendent of Schools	D. G. Clary	Two years.	December 1, 1883
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CARLTON COUNTY.

County Seat, Thompson.

Auditor	H. H. Hawkins	Two years.	March 1, 1883
Treasurer	Alex. Holm	“	March 1, 1883
Sheriff	Hugh Ferguson	“	January 1, 1882
Register of Deeds	H. H. Hawkins	“	January 1, 1882
Judge of Probate	A. M. Townsend	“	January 1, 1882
Attorney	H. H. Hawkins	“	January 1, 1882
Surveyor	L. W. Greene	“	January 1, 1882
Coroner	O. S. Watkins	“	January 1, 1882
Clerk District Court	C. O. Lovejoy	Four years.	January 1, 1883
Court Commissioner	R. A. Eva	Three years.	January 1, 1882
Superintendent of Schools	R. B. Wallace	Two years.	December 1, 1881

CARVER COUNTY.

County Seat, Chaska.

Auditor	Leonard Streukens	Two years.	March 1, 1883
Treasurer	Peter Weego	“	March 1, 1882
Sheriff	Frederick E. Dutoit	“	January 1, 1882
Register of Deeds	Frederick Greiner	“	January 1, 1882
Judge of Probate	Julius Schaler	“	January 1, 1882
Attorney	William C. Odell	“	January 1, 1882
Surveyor	Herman Swenson	“	January 1, 1883
Coroner	E. W. Lewis	“	January 1, 1883
Clerk District Court	Gustave Krayenbuhl	Four years.	January 1, 1882
Court Commissioner	George Mix	Three years.	January 1, 1883
Superintendent of Schools	P. A. N. Vreyen	Two years.	December 1, 1881

CHIPPEWA COUNTY.

County Seat, Montevideo.

Auditor	J. M. Severens	Two years.	March 1, 1882
Treasurer	L. H. Bay	“	March 1, 1882
Sheriff	Amund I. Amundson	“	January 1, 1882
Register of Deeds	A. C. Arnston	“	January 1, 1882
Judge of Probate	L. R. Moyer	“	January 1, 1882
Attorney	O. J. Wood	“	January 1, 1882
Surveyor	L. R. Moyer	“	January 1, 1882
Coroner	W. E. Wilson	“	January 1, 1882
Clerk District Court	E. L. Winje	Four years.	January 1, 1882
Court Commissioner	J. L. Kitchel	Three years.	January 1, 1881
Superintendent of Schools	O. J. Rollevson	Two years.	December 1, 1881

CHISAGO COUNTY.

County Seat, Center City.

Office.	Incumbent.	Term of Office.	Commencement of Term.
Auditor	J. P. Nord	Two years.	March 1, 1882
Treasurer	C. H. Bush	"	March 1, 1883
Sheriff	P. H. Stolberg	"	January 1, 1882
Register of Deeds	Andrew Wallmark	"	January 1, 1882
Judge of Probate	N. M. Humphrey	"	January 1, 1882
Attorney	E. C. Norgood	"	January 1, 1882
Surveyor	James E. White	"	January 1, 1883
Coroner	E. C. Ingals	"	January 1, 1882
Clerk District Court	P. Shalen	Four years.	January 1, 1882
Court Commissioner	H. P. Robie	Three years.	January 1, 1881
Superintendent of Schools.	V. D. Eddy	Two years.	December 1, 1881

CLAY COUNTY.

County Seat, Moorhead.

Office.	Incumbent.	Term of Office.	Commencement of Term.
Auditor	L. O. Storla	Two years.	March 1, 1883
Treasurer	J. C. H. Johnson	"	March 1, 1883
Sheriff	A. M. Larcom	"	January 1, 1883
Register of Deeds	H. DeCamp	"	January 1, 1883
Judge of Probate	F. E. Briggs	"	January 1, 1883
Attorney	B. Howard	"	January 1, 1883
Surveyor	O. W. Burnham	"	January 1, 1883
Coroner	Peter Czizek	"	January 1, 1883
Clerk District Court	G. A. Hendricks	Four years.	January 1, 1881
Court Commissioner	S. Partridge	Three years.	January 1, 1882
Supt. of Schools	Leon D. Brown	Two years.	December 1, 1882

COOK COUNTY.

County Seat, Grand Marais.

Office.	Incumbent.	Term of Office.	Commencement of Term.
Auditor	John M. Miller	Two years.	March 1, 1883
Treasurer	Joseph E. Mayhew	"	March 1, 1883
Register of Deeds	Thomas W. Mayhew	"	January 1, 1883
Surveyor	Nickolas Probeek	"	January 1, 1883
Coroner	L. E. Montfenand	"	January 1, 1883

COTTONWOOD COUNTY.

County Seat, Windom.

Office.	Incumbent.	Term of Office.	Commencement of Term.
Auditor	S. M. Espey	Two years.	March 1, 1883
Treasurer	J. N. McGregor	"	March 1, 1883
Sheriff	W. W. Barlow	"	January 1, 1883
Register of Deeds	C. H. Anderson	"	January 1, 1883
Judge of Probate	G. M. Laing	"	January 1, 1883
Attorney	A. D. Perkins	"	January 1, 1883
Surveyor	F. Riis	"	January 1, 1883
Coroner	J. H. Tilford	"	January 1, 1883
Clerk District Court	Orrin Nason	Four years.	January 1, 1882
Court Commissioner	G. M. Laing	Three years.	January 1, 1881
Supt. of Schools	G. L. Macomber	Two years.	December 1, 1881

CROW WING COUNTY.

County Seat, Brainerd.

Office.	Incumbent.	Term of Office.	Commencement of Term.
Auditor	F. B. Thompson	Two years.	March 1, 1883
Treasurer	N. McFadden	"	March 1, 1883
Sheriff	Peter Mertz	"	January 1, 1883
Register of Deeds	M. McFadden	"	January 1, 1883
Judge of Probate	H. D. Follett	"	January 1, 1883
Attorney	G. W. Holland	"	January 1. 1883
Surveyor	J. J. Kennedy	"	January 1, 1883
Coroner	J. C. Roser	"	January 1, 1883
Clerk District Court	C. B. Sleeper	Four years.	January 1, 1880
Court Commissioner	H. D. Follett	Three years.	January 1, 1883
Supt. of Schools	R. A. Beard	Two years.	December 1, 1881

DAKOTA COUNTY.

County Seat, Hastings.

Auditor	A. J. W. Thompson	Two years.	March 1, 1883
Treasurer	Daniel O'Brien	"	March 1, 1883
Sheriff	Hugh Connelly	"	January 1, 1883
Register of Deeds	John Webber	"	January 1, 1883
Judge of Probate	M. H. Sullivan	"	January 1, 1883
Attorney	Albert Schaller	"	January 1, 1883
Surveyor	Andrew Kregan	"	January 1, 1883
Coroner	W. S. Bacon	"	January 1, 1883
Clerk District Court	Eugene Dean	Four years.	January 1. 1883
Court Commissioner	O. T. Hayes	Three years.	January 1, 1881
Supt. of Schools	W. H. Sullivan, ex officio	Two years.	January 1, 1883

DODGE COUNTY.

County Seat, Mantorville.

Auditor	Arnold Alder	Two years.	March 1, 1883
Treasurer	John G. Chase	"	March 1, 1883
Sheriff	J. E. Getman	"	January 1, 1883
Register of Deeds	Melvin G. Peters	"	January 1. 1883
Judge of Probate	Charles H. Benton	"	January 1, 1883
Attorney	Richard A. Moses	"	January 1, 1883
Surveyor	Thomas J. Hunt	"	January 1. 1883
Coroner	E. C. Cummings	"	January 1, 1883
Clerk District Court	Wm. H. R. McMartin	Four years.	January 1, 1882
Court Commissioner	I. P. Brewer	Three years.	January 1, 1880
Supt. of Schools	Anson M. Sperry	Two years.	December 1, 1882

DOUGLAS COUNTY.

County Seat, Alexandria.

Auditor	Theo. Bordsen	Two years.	March 1, 1883
Treasurer	John Kron	"	March 1, 1883
Sheriff	Ole F. Urness	"	January 1, 1883
Register of Deeds	W. F. Canfield	"	January 1. 1883
Judge of Probate	Wm. McAboy	"	January 1, 1883
Attorney	H. Jenkins	"	January 1, 1883
Surveyor	H. Blackwell	"	January 1. 1883
Coroner	S. W. McEwan	"	January 1. 1883
Clerk District Court	R. K. White	Four years.	January 1. 1883
Court Commissioner	Chas. Schultz	Three years.	January 1, 1883
Superintendent of Schools	Wm. H. Sanders	Two years.	December 1, 1881

FARIBAULT COUNTY.

County Seat, Blue Earth City.

Office.	Incumbent.	Term of Office.	Commencement of Term.	
Auditor	W. W. White	Two years.	March	1, 1883
Treasurer	Anthony Andersen	"	March	1, 1882
Sheriff	Allen Cummings	"	January	1, 1882
Register of Deeds	F. P. Brown	"	January	1, 1883
Judge of Probate	J. A. Kiester	"	January	1, 1882
Attorney	Chas. N. Andrews	"	January	1, 1882
Surveyor	G. A. Weier	"	January	1, 1883
Coroner	C. S. Kimball	"	January	1, 1883
Clerk District Court	H. J. Neal	Four years.	January	1, 1881
Court Commissioner	J. A. Kiester	Three years.	January	1, 1883
Superintendent of Schools	R. W. Richards	Two years.	December	1, 1882

FILLMORE COUNTY.

County Seat, Preston.

Auditor	G. A. Hayes	Two years.	March	1, 1883
Treasurer	W. A. Nelson	"	March	1, 1882
Sheriff	S. A. Langum	"	January	1, 1883
Register of Deeds	H. C. Gullickson	"	January	1, 1882
Judge of Probate	E. V. Farrington	"	January	1, 1882
Attorney	N. Kingsley	"	January	1, 1883
Surveyor	C. H. Brown	"	January	1, 1883
Coroner	I. H. Phillips	"	January	1, 1883
Clerk District Court	A. D. Gray	Four years.	January	1, 1883
Court Commissioner	R. Wells	Three years.	January	1, 1882
Superintendent of Schools	John Brady	Two years.	December	1, 1881

FREEBORN COUNTY.

County Seat, Albert Lee.

Auditor	C. O. Barness	Two years.	March	1, 1883
Treasurer	Frank W. Barlow	"	March	1, 1882
Sheriff	T. J. Sheehan	"	January	1, 1883
Register of Deeds	Jens Hanson	"	January	1, 1882
Judge of Probate	Ira A. Town	"	January	1, 1882
Attorney	John Whylock	"	January	1, 1883
Surveyor	W. G. Kellar	"	January	1, 1882
Coroner	Paul Jenson	"	January	1, 1883
Clerk District Court	George T. Gardner	Four years.	January	1, 1880
Court Commissioner	Herman Blackmer	Three years.	January	1, 1882
Superintendent of Schools	C. W. Levens.	Two years.	December	1, 1881

GOODHUE COUNTY.

County Seat, Red Wing.

Auditor	C. C. Webster	Two years.	March	1, 1883
Treasurer	L. A. Hancock	"	March	1, 1 83
Sheriff	Frank A. Carlson	"	January	1, 1883
Register of Deeds	C. H. Johnson	"	January	1, 1883
Judge of Probate	N. O. Werner	"	January	1, 1883
Attorney	F. M. Wilson	"	January	1, 1883
Surveyor	S. A. Hart	"	January	1, 1883
Coroner	Wm. M. Sweeny	"	January	1, 1883
Clerk District Court	Hans Johnson	Four years.	January	1, 1883
Court Commissioner	N. O. Werner	Three years.	January	1, 1880
Superintendent of Schools	A. E. Engstrom	Two years.	December	1, 1881

GRANT COUNTY.

County Seat, Herman.

Office.	Incumbent.	Term of Office.	Commencement of Term.
Auditor	John Ohlsson	Two years.	March 1, 1882
Treasurer	Ole O. Canestorp	"	March 1, 1882
Sheriff	John T. Linden	"	January 1, 1883
Register of Deeds	Frank Forstein	"	January 1, 1882
Judge of Probate	Andrew Erlandson	"	January 1, 1882
Attorney	C. M. Stevens	"	January 1, 1883
Surveyor	P. Erlandson	"	January 1, 1883
Coroner	Dr. James Tucker	"	January 1, 1881
Superintendent of Schools	Thomas C. Hodgson	"	December 1, 1881

HENNEPIN COUNTY.

County Seat, Minneapolis.

Auditor	F. S. McDonald	Two years.	March 1, 1883
Treasurer	Frank Slocum	"	March 1, 1882
Sheriff	James Stoddart	"	January 1, 1883
Register of Deeds	George Huhn	"	January 1, 1883
Judge of Probate	A. Ueland	"	January 1, 1882
Attorney	John G. Woolley	"	January 1, 1883
Surveyor	Frank Plummer	"	January 1, 1883
Coroner	Archibald C. Fairbairn	"	January 1, 1883
Clerk District Court	E. J. Davenport	Four years.	January 1, 1881
Court Commissioner	A. Ueland	Three years.	January 1, 1881
Superintendent of Schools	C. W. Smith	Two years.	December 1, 1882

HOUSTON COUNTY.

County Seat, Caledonia.

Auditor	E. K. Roverud	Two years.	March 1, 1883
Treasurer	H. H. Snure	"	March 1, 1882
Sheriff	Walter Goergen	"	January 1, 1883
Register of Deeds	Mahlon Farmin	"	January 1, 1883
Judge of Probate	A. J. Flynn.	"	January 1, 1882
Attorney	C. S. Trask	"	January 1, 1883
Surveyor	L. E. Comstock	"	January 1, 1882
Coroner	H. P. Johnson	"	January 1, 1883
Clerk District Court	G. J Lomen	Four years.	January 1, 1882
Court Commissioner	Joseph Vossen	Three years.	January 1, 1883
Superintendent of Schools	D. C. Cameron	Two years.	December 1, 1882

ISANTI COUNTY.

County Seat, Cambridge.

Auditor	Hans Engberg	Two years.	March 1, 1883
Treasurer	P. R. Danielson	"	March 1, 1883
Sheriff	Alexander Martin	"	January 1, 1883
Register of Deeds	Andrew Danielson	"	January 1, 1883
Judge of Probate	Daniel Anderson	"	January 1, 1883
Attorney	G. W. Nesbitt	"	January 1, 1883
Surveyor	J. P. Perkins	"	January 1, 1883
Coroner	N. M. Cook	"	January 1, 1883
Clerk District Court	O. A. Hallin	Four years.	January 1, 1880
Court Commissioner	Peter Magnus	Three years.	January 1, 1882
Superintendent of Schools	Charles Booth	Two years.	December 1, 1881

JACKSON COUNTY.

County Seat, Jackson.

Office.	Incumbent.	Term of Office,	Commencement of Term,	
Auditor	William V. King	Two years.	March	1, 1882
Treasurer	John Paulson	"	March	1, 1882
Sheriff	Charles Malchow	"	January	1, 1882
Register of Deeds	A. C. Sernm	"	January	1, 1882
Judge of Probate	Simon Olson	"	January	1, 1883
Attorney	L. Walter Seely	"	January	1, 1883
Surveyor	James E. Palmer	"	January	1, 1882
Coroner	E. P. Gould	"	January	1, 1883
Clerk District Court	George R. Moore	Four years.	January	1, 1883
Court Commissioner	C. L. Campbell	Three years.	January	1, 1883
Superintendent of Schools.	Thomas J. Knox	Two years.	December	1, 1881

KANABEC COUNTY.

County Seat, Brunswick.

Auditor	S. E. Tallman	Two years.	March	1, 1883
Treasurer	John L. Spence	"	March	1, 1883
Sheriff	H. J Emery	"	January	1, 1883
Register of Deeds	N. H. Danforth	"	January	1, 1883
Judge of Probate	Andrew W. Forell.	"	January	1, 1882
Attorney	M. R. Kent	"	January	1, 1883
Surveyor	T. S. Heath	"	January	1, 1883
Clerk District Court	S. E. Tallman	Four years.	January	1, 1882
Court Commissioner	Edward Naslund	Three years.	January	1, 1883
Superintendent of Schools.	Edward Naslund.	Two years.	December	1, 1882

KANDIYOHI COUNTY.

County Seat, Willmar.

Auditor	Harold Swenson	Two years.	March	1, 1882
Treasurer	Andrew Railson	"	March	1, 1882
Sheriff	Peter A. Odell	"	January	1, 1882
Register of Deeds	John Hultgren	"	January	1, 1882
Judge of Probate	C. E. Lien	"	January	1, 1883
Attorney	Scott Ransom	"	January	1, 1882
Surveyor	Ole Eliasson	"	January	1, 1872
Coroner	B. Lambrecht	"	January	1, 1883
Clerk District Court	A. F. Nordin	Four years.	January	1, 1880
Court Commissioner	C. E. Lein	Three years.	January	1, 1882
Superintendent of Schools.	Charles A. Birch	Two years.	December	1, 1881

KITTSON COUNTY.

County Seat, Hallock.

Auditor	H. Enstrom	Two years.	March	1, 1882
Treasurer	Hans Hanson	"	March	1, 1882
Sheriff	John A. Vanstrom	"	January	1, 1882
Register of Deeds	Wm. M. O'Keefe	"	January	1, 1882
Judge of Probate	Daniel F. Brawley	"	January	1, 1882
Attorney	R. R. Hedenberg	"	January	1, 1882
Surveyor	G. U. Holcombe	"	January	1, 1882
Coroner	J. D. Stetson	"	January	1, 1883
Clerk District Court	F. M. McLaughlin	Four years.	January	1, 1882
Court Commissioner	G. U. Holcombe	Three years.	January	1, 1882
Supt. of Schools	P. H. Konzen	Two years.	December	1, 1881

LAC QUI PARLE COUNTY.

County Seat, Lac qui Parle.

Office.	Incumbent.	Term of Office.	Commencement of Term.
Auditor	H. Steinarson	Two years.	March 1, 1883
Treasurer	Erick Mathison	"	March 1, 1883
Sheriff	John Maguire	"	January 1, 1883
Register of Deeds	Peter A. Olsen	"	January 1, 1883
Judge of Probate	P. F. Jacobson	"	January 1, 1882
Attorney	J. C. Pope	"	January 1, 1882
Surveyor	H. Seydler	"	January 1, 1882
Coroner	S. G. Miller	"	January 1, 1883
Clerk District Court	J. B. Oadson	Four years.	January 1, 1881
Court Commissioner	E. Brown	Three years.	January 1, 1883
Supt. of Schools	H. Steinarson	Two years.	December 1, 1881

LAKE COUNTY.

County Seat, Beaver Bay.

Office.	Incumbent.	Term of Office.	Commencement of Term.
Auditor	Gustave A. Schulze	Two years.	March 1, 1883
Treasurer	Charles C. Wieland	"	March 1, 1883
Register of Deeds	Paul F. E Wieland	"	January 1, 1883
Surveyor	Josef Betzler	"	January 1, 1883
Coroner	Josef Betzler	"	January 1, 1883
Supt. of Schools	Gustave A. Schulze	"	December 1, 1882

LE SUEUR COUNTY.

County Seat, Le Sueur Center.

Office.	Incumbent.	Term of Office.	Commencement of Term.
Auditor	Philip Dresel	Two years.	March 1, 1883
Treasurer	R H. Everest	"	March 1, 1882
Sheriff	Henry L. Gish	"	January 1, 1882
Register of Deeds	T. H. Smullen	"	January 1, 1882
Judge of Probate	James Dilahanty	"	January 1, 1882
Attorney	Thomas Hessian	"	January 1, 1883
Surveyor	Cyrus G. Myrick	"	January 1, 1883
Coroner	C. A. Dolan	"	January 1, 1883
Clerk District Court	Frank W. Kolars	Four years.	January 1, 1882
Court Commissioner	Joseph Chadderdon	Three years.	January 1, 1881
Supt. of Schools	Thomas Barker	Two years.	December 1, 1882

LINCOLN COUNTY.

County Seat, Lake Benton.

Office.	Incumbent.	Term of Office.	Commencement of Term.
Auditor	G. I. Larson	Two years.	March 1, 1882
Treasurer	Fred Carlisle	"	March 1, 1883
Sheriff	Peter F. Reynolds	"	January 1, 1883
Register of Deeds	R. A. Dore	"	January 1, 1883
Judge of Probate	S. O. Nordvold	"	Jenuary 1, 1883
Attorney	John L. Cass	"	January 1, 1883
Surveyor	L. F. Royal	"	January 1, 1883
Coroner	H D. Jenches	"	January 1, 1882
Clerk District Court	Charles Marsh	Four years.	January 1, 1881
Court Commissioner	S. D. Pumpelly	Three years.	January 1, 1883
Supt of Schools	A. H. Barnard	Two years.	December 1, 1881

LYON COUNTY.

County Seat, Marshall.

Office.	Incumbent.	Term of Office.	Commencement of Term.
Auditor	James Lawrence	Two years.	March 1, 1883
Treasurer	R. M. Addison	"	March 1, 1883
Sheriff	J. T. Remore	"	January 1, 1883
Register of Deeds	R. R. Burnford	"	January 1, 1883
Judge of Probate	F. S. Brown	"	January 1, 1883
Attorney	A. C. Forbes	"	January 1, 1883
Surveyor	D. Ward Kennedy	"	January 1, 1883
Coroner	J. N. Andrews	"	January 1, 1883
Clerk District Court	C. E. Patterson	Four years.	January 1, 1883
Court Commissioner	D. Wilcox	Three years.	January 1, 1883
Supt. of Schools	G. M. Durst	Two years.	December 1, 1882

McLEOD COUNTY.

County Seat, Glencoe.

Auditor	L. M. Gazin	Two years.	March 1, 1883
Treasurer	L. W. Lester	"	March 1, 1882
Sheriff	A. Hopper	"	January 1, 1883
Register of Deeds	S. P. Brown	"	January 1, 1883
Judge of Probate	J. V. V. Lewis	"	January 1, 1883
Attorney	A. P. Fitch	"	January 1, 1883
Surveyor	L. G. Simons	"	January 1, 1883
Coroner	Wm. H. Thurmond	"	January 1, 1883
Clerk District Court	John Linten	Four years.	January 1, 1883
Court Commissioner	G. K. Gilbert	Three years.	January 1, 1881
Superintendent of Schools.	J. H. Dorsey	Two years.	December 1, 1881

MARSHALL COUNTY.

County Seat, Warren.

Auditor	E. J. Royem	Two years.	March 1, 1882
Treasurer	J. B. Titus	"	March 1, 1882
Sheriff	A. J. Benneuitz	"	January 1, 1882
Register of Deeds	T. R. Craig	"	January 1, 1882
Judge of Probate	E. R. Rosso	"	January 1, 1882
Attorney	A. E. Flint	"	January 1, 1883
Surveyor	P. Dalquist	"	January 1, 1882
Coroner	A. N. Janson	"	January 1, 1882
Clerk Diftrict Court	J. P. Nelson	Four years.	January 1, 1882
Court Commissioner	Peter Kirsch	Three years.	January 1, 1883
Superintendent of Schools.	P. Kirsch	Two years.	December 1, 1882

MARTIN COUNTY.

County Seat, Fairmont.

Auditor	M. E. L. Shanks	Two years.	March 1, 1883
Treasurer	Wm. Viesselman	"	March 1, 1882
Sheriff	Wm. Bird	"	January 1, 1883
Register of Deeds	J. R. Frazier	"	January 1, 1882
Judge of Probate	F. S. Livermore	"	January 1, 1883
Attorney	J. L. Higgins	"	January 1, 1883
Surveyor	L. F. Brainard	"	January 1, 1883
Coroner	H. N. Rice	"	January 1, 1883
Clerk District Court	E. F. Wade	Four years.	January 1, 1882
Court Commissioner	C. H. Bullard	Three years.	January 1, 1881
Superintendent of Schools.	D. P. Sackett	Two years.	December 1, 1881

MEEKER COUNTY.

County Seat, Litchfield.

Office.	Incumbent.	Term of Office.	Commencement of Term.
Auditor	G. B. Phelps	Two years.	March 1, 1883
Treasurer	A. Palm.	"	March 1, 1882
Sheriff	P. Ekstrom	"	January 1, 1882
Register of Deeds	Aug. T. Koerner	"	January 1, 1883
Judge of Probate	N. C. Martin	"	January 1, 1882
Attorney	E. A. Campbell	"	January 1, 1882
Surveyor	J. B. Salisbury	"	January 1, 1883
Coroner	J. A. Quick	"	January 1, 1882
Clerk District Court	S. W. Leavett	Four years.	January 1, 1880
Court Commissioner	F. V. DeCoster	Three years.	January 1, 1881
Superintendent of Schools.	J. W. Wright	Two years.	December 1, 1881

MILLE LACS COUNTY.

County Seat, Princeton.

Auditor	J. S. Mudget	Two years.	March 1, 1883
Treasurer	F. M. Campbell	"	March 1, 1882
Sheriff	A. F. Howard	"	January 1, 1883
Register of Deeds	N. A. Ross	"	January 1, 1883
Judge of Probate	Charles Keithe	"	January 1, 1883
Attorney	J. L. Brady	"	January 1, 1883
Surveyor	L. Pratt	"	January 1, 1883
Coroner	E. C. Gile	"	January 1, 1883
Clerk District Court	D. A. Coley	Four years.	January 1, 1881
Court Commissioner	G. M. Reynolds	Three years.	January 1, 1883
Superintendent of Schools.	Mrs. Olive R. Barker	Two years.	December 1, 1882

MORRISON COUNTY.

County Seat, Little Falls.

Auditor	J. D. Lachance	Two years.	March 1, 1883
Treasurer	W. T Lambert	"	March 1, 1882
Sheriff	Henry Rosicot	"	January 1, 1883
Register of Deeds	Lyman Signor	"	January 1, 1883
Judge of Probate	A. F. Storey	"	January 1, 1883
Attorney	D. T. Calhoun	"	January 1, 1882
Surveyor	R. J. Batzer	"	January 1, 1883
Coroner	A. J. McMannus	"	January 1, 1883
Clerk District Court	Leon Houde	Four years.	January 1, 1883
Court Commissioner	R. M. Worthington	Three years.	January 1, 1883
Superintendent of Schools.	A. Guernon	Two years.	December 1, 1881

MOWER COUNTY.

County Seat, Austin.

Auditor	H. W. Elms	Two years.	March 1, 1883
Treasurer	G. L. Case	"	March 1, 1882
Sheriff	H. B. Cerey	"	January 1, 1883
Register of Deeds	M. M. Trowbridge	"	January 1, 1883
Judge of Probate	Ormanzo Allen	"	January 1, 1883
Attorney	J. M. Greenman	"	January 1, 1883
Surveyor	G. H. Allen	"	January 1, 1883
Coroner	J. P. Squires	"	January 1, 1883
Clerk District Court	S. Sweningsen	Four years.	January 1, 1882
Court Commissioner	C. J. Shortt	Three years.	January 1, 1883
Superintendent of Schools.	C. D. Belden	Two years.	December 1, 1881

MURRAY COUNTY.

County Seat, Currie.

Office.	Incumbent.	Term of Office.	Commencement of Term.
Auditor	J. H. Low	Two years.	March 1, 1883
Treasurer	N. Taarud	"	March 1, 1883
Sheriff	L. Mason	"	January 1, 1883
Register of Deeds	S. P. Johnson	"	January 1, 1883
Judge of Probate	B. H. Whitney	"	January 1, 1883
Attorney	H. C. Grass	"	January 1, 1883
Surveyor	B. W. Woolstencroft	"	January 1, 1883
Coroner	Oliver Drew.	"	January 1, 1883
Clerk District Court	Neil Currie	Four years.	January 1, 1881
Court Commissioner	W. S. Root	Three years.	January 1, 1881
Superintendent of Schools.	S. P. McIntyre	Two years.	December 1, 1881

NICOLLET COUNTY.

County Seat, St. Peter.

Auditor	E. S. Pettijohn	Two years.	March 1, 1883
Treasurer	Charles Kayser	"	March 1, 1882
Sheriff	Henry Mole	"	January 1, 1882
Register of Deeds	Lars Anderson	"	January 1, 1882
Judge of Probate	John Peterson	"	January 1, 1882
Attorney	C. R. Davis	"	January 1, 1883
Surveyor	Joseph Kennedy	"	January 1, 1882
Coroner	Wm. Klein	"	January 1, 1882
Clerk District Court	Benjamin Rogers	Four years.	January 1, 1880
Court Commissioner	J. B. Sackett	Three years.	January 1, 1882
Superintendent of Schools.	Wm. G. Grushom	Two years.	December 1, 1881

NOBLES COUNTY.

County Seat, Worthington.

Auditor	E. S. Mills	Two years.	March 1, 1882
Treasurer	H. C. Shepard	"	March 1, 1882
Sheriff	R. R. Miller	"	January 1, 1882
Register of Deeds	B. F. Johnson	"	January 1, 1882
Judge of Probate	L. S. Nelson	"	January 1, 1883
Attorney	Geo. W. Wilson	"	January 1, 1883
Surveyor	J. W. Miller	"	January 1, 1882
Coroner	J. S. McMannus	"	January 1, 1882
Clerk District Court	L. B. Bennett	Four years.	January 1, 1882
Court Commissioner	L. S. Nelson	Three years.	January 1, 188
Superintendent of Schools.	M. A. Doane	Two years.	December 1, 1881

NORMAN COUNTY.

County Seat, Ada.

Auditor	Alexander Running	Two years.	March 1, 1883
Treasurer	A. K. Strand	"	March 1, 1883
Sheriff	Knute Sandvig	"	January 1, 1883
Register of Deeds	Nels Kjeldson	"	January 1, 1883
Judge of Probate	Gabriel Bjornson	"	January 1, 1883
Attorney	Gib. A. Lane	"	January 1, 1883
Surveyor	A. H. Koren	"	January 1, 1883
Coroner	Knute Darson	"	January 1, 1883
Clerk District Court	J. C. Norby	Four years.	January 1, 1883
Court Commissioner	Norman Hanson	Three years.	January 1. 1883
Superintendent of Schools.	P. O. Stroemme	Two years.	December 1, 1882

OLMSTED COUNTY.

County Seat, Rochester.

Office.	Incumbent	Term of Office.	Commencement of Term.	
Auditor	C. A. Whited	Two years.	March	1, 1883
Treasurer	G. A. Frizzel	"	March	1, 1882
Sheriff	H. M. Richardson	"	January	1, 1882
Register of Deeds	M. R. Wood	"	January	1, 1882
Judge of Probate	H. C. Butler	"	January	1, 1883
Attorney	F. B. Kellogg	"	January	1, 1882
Surveyor	Thomas Hunter	"	January	1, 1882
Coroner	F. R. Mosse	"	January	1, 1883
Clerk District Court	C. H. Heffron	Four years.	January	1, 1882
Court Commissioner	O. O. Baldwin	Three years.	January	1, 1883
Superintendent of Schools	F. L. Cook	Two years.	December	1, 1882

OTTER TAIL COUNTY.

County Seat, Fergus Falls.

Auditor	F. W. Burnham	Two years.	March	1, 1882
Treasurer	Gust. A. Lindquist	"	March	1, 1882
Sheriff	Gunder Bartelson	"	January	1, 1883
Register of Deeds	George W. Boyington	"	January	1, 1883
Judge of Probate	J. P. Williams	"	January	1, 1882
Attorney	E. E. Corliss	"	January	1, 1883
Surveyor	D. G. Weefe	"	January	1, 1883
Coroner	W. C. Bedford	"	January	1, 1882
Clerk District Court	Charles J. Wright	Four years.	January	1, 1881
Court Commissioner	A. J. Underwood	Three years.	January	1, 1882
Superintendent of Schools	George F. Cowing	Two years.	December	1, 1881

PINE COUNTY.

County Seat, Pine City.

Auditor	Fred A. Hodge	Two years.	March	1, 1883
Treasurer	Oliver Wilcox	"	March	1, 1883
Sheriff	James McGann	"	January	1, 1883
Register of Deeds	James Hurley	"	January	1, 1883
Judge of Probate	E. Venhoven	"	January	1, 1883
Attorney	John D. Wilcox	"	January	1, 1883
Surveyor	Henry Ruhmor	"	January	1, 1883
Coroner	William Tierney	"	January	1, 1883
Clerk District Court	James Hurley	Four years.	January	1, 1880
Court Commissioner	William Tierney	Three years.	January	1, 1883
Superintendent of Schools	John D. Wilcox	Two years.	December	[1, 1881

PIPESTONE COUNTY.

County Seat, Pipestone City.

Auditor	John Pearson	Two years.	March	1, 1883
Treasurer	E. A. Rice	"	March	1, 1883
Sheriff	George D. Green	"	January	1, 1883
Register of Deeds	Riley French	"	January	1, 1883
Judge of Probate	S. H. Smart	"	January	1, 1882
Attorney	E. C. Dean	"	January	1, 1883
Surveyor	D. E. Sweet	"	January	1, 1883
Coroner	John L Grun	"	January	1, 1883
Clerk District Court	J. H. Nichols	Four years.	January	1, 1882
Court Commissioner	O. H. Bennett	Three years.	January	1, 1881
Superintendent of Schools	E. W. Darg	Two years.	December	1, 1881

POLK COUNTY.

County Seat, Crookston.

Office.	Incumbent.	Term of Office.	Commencement of Term.	
Auditor	P. J. McGuire	Two years.	March	1, 1883
Treasurer	O. H. Lucken	"	March	1, 1883
Sheriff	W. F. Zwickey	"	January	1, 1883
Register of Deeds	C. S. Spindley	"	January	1, 1883
Judge of Probate	R. J. Montague	"	January	1, 1883
Attorney	William Watts	"	January	1, 1883
Surveyor	C. L. Brainard	"	January	1, 1883
Coroner	M. Watts	"	January	1, 1883
Clerk of District Court	T. C. Shapleigh	Four years.	January	1, 1883
Court Commissioner	John Leo	Three years.	January	1, 1882
Superintendent of Schools	V. D. Corruth	Two years.	December	1, 1881

POPE COUNTY.

County Seat, Glenwood.

Auditor	M. A. Wollan	Two years.	March	1, 1883
Treasurer	Ole Rigg, Jr	"	March	1, 1883
Sheriff	Joseph Peacock	"	January	1, 1883
Register of Deeds	Albert Peterson	"	January	1, 1883
Judge of Probate	Norman Shook	"	January	1, 1882
Attorney	T. T. Ofsthum	"	January	1, 1883
Surveyor	Kirk J. Kinney	"	January	1, 1883
Coroner	Dr. John F. Skinner	"	January	1, 1883
Clerk District Court	Tory Thorson	Four years.	January	1, 1881
Court Commissioner	John W. Simmons	Three years.	January	1, 1881
Superintendent of Schools	Joseph R. Geddes	Two years.	December	1, 1881

RAMSEY COUNTY.

County Seat, St. Paul.

Auditor	J. J. McCardy	Two years.	March	1, 1882
Treasurer	H. M. Rice	"	March	1, 1882
Sheriff	Fred. Richter	"	January	1, 1883
Register of Deeds	C. H. Lienau	"	January	1, 1882
Judge of Probate	William B. McGrorty	"	January	1, 1883
Attorney	J. J. Egan	"	January	1, 1882
Surveyor	D. L. Curtice	"	January	1, 1883
Coroner	James Davenport, Jr	"	January	1, 1882
Clerk District Court	R. W. Bell	Four years.	January	1, 1882
Court Commissioner	A. S. Hall	Three years.	January	1, 1882
Superintendent of Schools	Henry G. Blake	Two years.	December	1, 1882

REDWOOD COUNTY.

County Seat, Redwood Falls.

Auditor	J. M. Van Shaack	Two years.	March	1, 1882
Treasurer	A. A. Wilson	"	March	1, 1882
Sheriff	M. B. Abbett	"	January	1, 1882
Register of Deeds	George L. Evans	"	January	1, 1882
Judge of Probate	John H. Bowers	"	January	1, 1882
Attorney	M. E. Powell	"	January	1, 1883
Surveyor	T. Tibbets	"	January	1, 1882
Coroner	C. S. Stoddard	"	January	1, 1882
Clerk District Court	Franklin Ensign	Four years.	January	1, 1881
Court Commissioner	Samuel Stickle	Three years.	January	1, 1882
Superintendent of Schools	R. L. Marshman	Two years.	December	1, 1881

RENVILLE COUNTY.

County Seat, Beaver Falls.

Office.	Incumbent.	Term of Office.	Commencement of Term.
Auditor	P. H. Kirwan	Two years.	March 1, 1883
Treasurer	Hans Gronnerud	"	March 1, 1883
Sheriff	Hans O. Field	"	January 1, 1883
Register of Deeds	B. A. Knapp	"	January 1, 1883
Judge of Probate	John Garritty	"	January 1, 1882
Attorney	G. T. Christianson	"	January 1, 1883
Surveyor	C. G. Johnson	"	January 1, 1883
Coroner	A. G. Stoddard	"	January 1, 1883
Clerk District Court	William W. McGowan	Four years.	January 1, 1883
Court Commissioner	Henry Kelsey	Three years.	January 1, 1882
Superintendent of Schools.	I. S. Gerald	Two years.	December 1, 1881

RICE COUNTY.

County Seat, Faribault.

Auditor	S. L. Crockes	Two years.	March 1, 1883
Treasurer	Lorenzo Jackson	"	March 1, 1882
Sheriff	Ara Barton	"	January 1, 1882
Register of Deeds	J. N. Donaldson	"	January 1, 1882
Judge of Probate	John Mullin	"	January 1, 1882
Attorney	A. D. Keyer	"	January 1, 1882
Surveyor	George M. Andrews	"	January 1, 1883
Coroner	Dr. George W. Wood	"	January 1. 1882
Clerk District Court	Charles T. Palmer	Four years.	January 1, 1881
Court Commissioner	T. H. Streeter	Three years.	January 1, 1882
Superintendent of Schools.	S. B. Wilson	Two years.	December 1, 1882

ROCK COUNTY.

County Seat, Lu Verne.

Auditor	W. H. Halbert.	Two years.	March 1, 1883
Treasurer	P. O. Skyberg	"	March 1, 1883
Sheriff	Edwin Gillham	"	January 1, 1883
Register of Deeds	P. F. Kelly	"	January 1, 1883
Judge of Probate	C. A. Mead	"	January 1, 1883
Attorney	N. R. Reynolds	"	January 1, 1883
Surveyor	F. D. Putney	"	January 1, 1883
Coroner	George Millhouse	"	January 1, 1883
Clerk District Court	J. O. Helgeson	Four years.	January 1, 1883
Court Commissioner	R. M. Click	Three years.	January 1, 1883
Superintendent of Schools.	J. L. Helm.	Two years.	December 1, 1881

SCOTT COUNTY.

County Seat, Shakopee.

Auditor	M. Mayer	Two years.	March 1, 1883
Treasurer	William Wilson	"	March 1, 1882
Sheriff	Theodore Weiland	"	January 1, 1882
Register of Deeds	Gerhard Hilgers	"	January 1, 1882
Judge of Probate	Nic Meyer	"	January 1, 1882
Attorney	James M. Hale	"	January 1, 1883
Surveyor	H. J. Chevre	"	January 1, 1882
Coroner	Alois Hirscher	"	January 1, 1882
Clerk District Court	Julius A. Coller	Four years.	January 1, 1882
Court Commissioner	F. J. Whitlock	Three years.	January 1, 1882
Superintendent of Schools.	M. M. Shields	Two years.	December 1, 1882

SHERBURNE COUNTY.

County Seat, Elk River.

Office.	Incumbent.	Term of Office.	Commencement of Term.	
Auditor	J. W. Glassford	Two years.	March	1, 1883
Treasurer	J. Q. A. Nickerson	"	March	1, 1882
Sheriff	S. C. Danel	"	January	1, 1883
Register of Deeds	Henry Castle	"	January	1, 1883
Judge of Probate	H. P. Burrell	"	January	1, 1883
Attorney	H. M. Atkins	"	January	1, 1883
Surveyor	J. H. Williams	"	January	1, 1882
Coroner	L. O. Lind	"	January	1, 1883
Clerk District Court	Henry Castle	Four years.	January	1, 1883
Court Commissioner	J. Featherston	Three years.	January	1, 1881
Superintendent of Schools	W. M. Jenkins	Two years.	December	1, 1881

SIBLEY COUNTY.

County Seat, Henderson.

Auditor	H. A. Seigneurat	Two years.	March	1, 1883
Treasurer	Chas. Comnick	"	March	1, 1883
Sheriff	Patrick Bray	"	January	1, 1883
Register of Deeds	Daniel Pickit	"	January	1, 1883
Judge of Probate	J. P. Kirby	"	January	1, 1881
Attorney	Sylvester Kipp	"	January	1, 1881
Surveyor	Adam Buck	"	January	1, 1881
Coroner	Maurice Joyce	"	January	1, 1883
Clerk District Court	M. R. Wilcox	Four years.	January	1, 1880
Court Commissioner	E. J. Ayer	Three years.	January	1, 1883
Supt. of Schools	Wm. H. Willson	Two years.	December	1, 1881

STEARNS COUNTY.

County Seat, St. Cloud.

Auditor	Barney Vossberg	Two years.	March	1, 1883
Treasurer	J. A. Moosbrugger	"	March	1, 1882
Sheriff	Mathias Mickley	"	January	1, 1882
Register of Deeds	John Zapp	"	January	1, 1882
Judge of Probate	Peter Brick	"	January	1, 1882
Attorney	D. B Searle	"	January	1, 1882
Surveyor	M. P. Noel	"	January	1, 1882
Coroner	Barney Overbeck	"	January	1, 1882
Clerk District Court	E. B. Strong	Four years.	January	1, 1883
Court Commissioner	L. A. Evans	Three years.	January	1, 1883
Supt. of Schools	P. B. Gorman	Two years.	December	1, 1881

STEELE COUNTY.

County Seat, Owatonna.

Auditor	M. B. Chadwick	Two years.	March	1, 1883
Treasurer	J. A. Candell	"	March	1, 1882
Sheriff	Clarke Chambers	"	January	1, 1882
Register of Deeds	E. A. Tyler	"	January	1, 1883
Judge of Probate	L. Hazen	"	January	1, 1883
Attorney	W. F. Sawyer	"	January	1, 1883
Surveyor	John H. Abbott	"	January	1, 1882
Coroner	H. S. Hill	"	January	1, 1882
Clerk District Court	J. A. Cotter	Four years.	January	1, 1882
Court Commissioner	L. Hazen	Three years.	January	1, 1882
Supt. of Schools	Geo. C. Tanner	Two years.		

STEVENS COUNTY.

County Seat, Morris.

Office.	Incumbent.	Term of Office.	Commencement of Term.
Auditor	Thos. E. Heenan	Two years.	March 6, 1882
Treasurer	Hugh Whiteley	"	March 1, 1882
Sheriff	C. P. Maginnes	"	January 1, 1882
Register of Deeds	Justin L. Miller	"	January 1, 1882
Judge of Probate	L. E. Pearce	"	January 1, 1882
Attorney	C. L. Brown	"	January 1, 1882
Surveyor	D. T. Wheaton	"	January 1, 1882
Coroner	H. L. Hulburd	"	January 1, 1882
Clerk District Court	Henry Baldwin	Four years.	January 1, 1880
Court Commissioner	Max Bucheutin	Three years.	January 1, 1882
Supt. of Schools	James A. Johnson	Two years.	December 1, 1881

ST. LOUIS COUNTY.

County Seat, Duluth.

Auditor	Geo. Berkelmann	Two years.	March 1, 1882
Treasurer	J. P. Johnson	"	March 1, 1882
Sheriff	S. C. McQuade	"	January 1, 1882
Register of Deeds	Jos. A. Mannheim	"	January 1, 1882
Judge of Probate	John Dunphy	"	January 1, 1882
Attorney	Daniel G. Cash	"	January 1, 1882
Surveyor	Geo. R. Stuntz	"	January 1, 1882
Coroner	Samuel J. Thompson	"	January 1, 1882
Clerk District Court	John R. Carey	Four years.	January 1, 1882
Court Commissioner	E. P. Martin	Three years.	January 1, 1882
Supt. of Schools	R. G. McGuire	Two years.	December 1, 1882

SWIFT COUNTY.

County Seat, Benson.

Auditor	O. F. Bronniche	Two years.	March 1, 1882
Treasurer	Thomas Knudson	"	March 1, 1882
Sheriff	A. F. McKay	"	January 1, 1882
Register of Deeds	O. Wenaus	"	January 1, 1882
Judge of Probate	A. D. Countryman	"	January 1, 1882
Attorney	S. H. Hudson	"	January 1, 1882
Surveyor	R. R Johnson	"	January 1, 1882
Coroner	Joseph Ward	"	January 1, 1882
Clerk District Court	J. Moore	Four years.	January 1, 1880
Court Commissioner	J. Moore	Three years.	January 1, 1882
Supt. of Schools	A. M. Utter	Two years.	December 1, 1881

TODD COUNTY.

County Seat, Long Prairie.

Auditor	M. J. Martin	Two years.	March 1, 1882
Treasurer	F. C. Chase	"	March 1, 1882
Sheriff	J. F. Bassett	"	January 1, 1882
Register of Deeds	J. I. Bell	"	January 1, 1882
Judge of Probate	L. S. Hoadley	"	January 1, 1882
Attorney	H H. Crowell	"	January 1, 1882
Surveyor	C. H. Ward	"	January 1, 1882
Coroner	M. Nessline	"	January 1, 1882
Clerk District Court	Jacob Fisher	Four years.	January 1, 1882
Court Commissioner	M. L. Smith	Three years.	January 1, 1882
Superintendent of Schools	John Barnes	Two years.	December 1, 1881

TRAVERSE COUNTY.

County Seat, Mandada.

Office.	Incumbent.	Term of Office.	Commencement of Term.	
Auditor	H. W. Barrett	Two years.	March	1, 1883
Treasurer	J. T. Schain	"	March	1, 1883
Sheriff	W. S. Barnett	"	January	1, 1883
Register of Deeds	H. L. Mills	"	January	1, 1883
Judge of Probate	A. E. Ludwig	"	January	1, 1883
Attorney	Josephus Alley	"	January	1, 1883
Surveyor	D. S. Cobb	"	January	1, 1883
Coroner	C. C. Mills	"	January	1, 1883
Clerk District Court	S. W. Frazier	Four years.	January	1, 1883
Court Commissioner	A. Cowless	Three years.	January	1, 1883
Superintendent of Schools	D. L. Roach	Two years.	December	1, 1883

WABASHA COUNTY.

County Seat, Wabasha.

Office.	Incumbent.	Term of Office.	Commencement of Term.	
Auditor	George A. Perkins	Two years.	March	1, 1883
Treasurer	R. A. Johnson	"	March	1, 1883
Sheriff	Henry Burkhardt	"	January	1, 1883
Register of Deeds	Joseph C. Bartlett	"	January	1, 1882
Judge of Probate	A. Z. Putnam	"	January	1, 1882
Attorney	John F. McGovern	"	January	1, 1883
Surveyor	G. Maxwell	"	January	1, 1882
Coroner	W. J. Arnold	"	January	1, 1883
Clerk District Court	Chas. J. Stauff	Four years.	January	1, 1882
Court Commissioner	John Stewart	Three years.	January	1, 1879
Superintendent of Schools	Allen J. Greer	Two years.	December	1, 1881

WADENA COUNTY.

County Seat, Wadena.

Office.	Incumbent.	Term of Office.	Commencement of Term.	
Auditor	F. C. Field	Two years.	March	1, 1882
Treasurer	Z. Handerson	"	March	1, 1882
Sheriff	J. Montgomery	"	January	1, 1882
Register of Deeds	E. S. Case	"	January	1, 1882
Judge of Probate	T. F. Ostrander	"	January	1, 1882
Attorney	C. A. Conillard	"	January	1, 1882
Surveyor	C. C. Parker	"	January	1, 1882
Coroner	H. J. Harding	"	January	1, 1881
Clerk District Court	C. E. Bullard	Four years.	January	1, 1882
Court Commissioner	T. F. Ostrander	Three years.	January	1, 1882
Superintendent of Schools	A. S. McMillan	Two years.	December	1, 1881

WASECA COUNTY.

County Seat, Waseca.

Office.	Incumbent.	Term of Office.	Commencement of Term.	
Auditor	Calvin E. Crane	Two years.	March	1, 1883
Treasurer	Charles McKenna	"	March	1, 1883
Sheriff	Hugh Wilson	"	January	1, 1882
Register of Deeds	Charles Sangalli	"	January	1, 1882
Judge of Probate	Samuel D. Crump	"	January	1, 1882
Attorney	W. R. Kinder	"	January	1, 1882
Surveyor	Orson L. Smith	"	January	1, 1882
Coroner	D. S. Cummings	"	January	1, 1882
Clerk District Court	James B. Hayden	Four years.	January	1, 1880
Court Commissioner	Frank A. Newell	Three years.	January	1, 1881
Superintendent of Schools	D. S. Cummings	Two years.	December	1, 1881

WASHINGTON COUNTY.

County Seat, Stillwater.

Office.	Incumbent.	Term of Office.	Commencement of Term.
Auditor	James G. Foley	Two years.	March 1, 1883
Treasurer	George S. Brown	"	March 1, 1882
Sheriff	Charles P. Holcomb	"	January 1, 1882
Register of Deeds	Walter R. Lehmicke	"	January 1, 1882
Judge of Probate	Rudolph Lehmicke	"	January 1, 1883
Attorney	Ira W. Castle	"	January 1, 1882
Surveyor	Myron Shepard	"	January 1, 1883
Coroner	B. J. Merrill	"	January 1, 1883
Clerk District Court	C. A. Bennett	Four years.	January 1, 1882
Court Commissioner	Frank Ewing	Three years.	January 1, 1882
Superintendent of Schools	A. D. Roe	Two years.	December 1, 1881

WATONWAN COUNTY.

County Seat, St. James.

Office.	Incumbent.	Term of Office.	Commencement of Term.
Auditor	George Knudson	Two years.	March 1, 1882
Treasurer	M. E. Dunn	"	March 1, 1883
Sheriff	H. H. Higgins	"	January 1, 1882
Register of Deeds	Thos. Torson	"	January 1, 1882
Judge of Probate	M. E. Mullen	"	January 1, 1883
Attorney	F. L. Janes	"	January 1, 1882
Surveyor	S. C. Clark	"	January 1, 1882
Coroner	C. R. Bacon	"	January 1, 1882
Clerk of District Court	Geo. P. Johnston	Four years.	January 1, 1882
Court Commissioner	J. R. McLean	Three years.	January 1, 1882
Superintendent of Schools	Geo. M. Johnson	Two years.	December 1, 1881

WILKIN COUNTY.

County Seat, Breckenridge.

Office.	Incumbent.	Term of Office.	Commencement of Term.
Auditor	Henry Champion	Two years.	March 1, 1882
Treasurer	A. W. Coats	"	March 1, 1882
Sheriff	F. M. Arbuckle	"	January 1, 1883
Register of Deeds	Ransom Phelps	"	January 1, 1882
Judge of Probate	Dr. C. F. Falley	"	January 1, 1883
Attorney	Silas W. Ruger	"	January 1, 1883
Surveyor	Geo. W. Robinson	"	January 1, 1882
Coroner	Dr. W. L. Phillips	"	January 1, 1882
Clerk District Court	Andrew Brandrup	Four years.	January 1, 1881
Court Commissioner	David McCauley	Three years.	January 1, 1883
Superintendent of Schools	David McCauley	Two years.	December 1, 1881

WINONA COUNTY.

County Seat, Winona.

Office.	Incumbent.	Term of Office.	Commencement of Term.
Auditor	Henry W. Posz	Two years.	March 1, 1883
Treasurer	S. W. Hamilton	"	March 1, 1882
Sheriff	E. V. Bogart	"	January 1, 1882
Register of Deeds	E. W. Rebstock	"	January 1, 1883
Judge of Probate	Jacob Story	"	January 1, 1882
Attorney	Patrick Fitzpatrick	"	January 1, 1883
Surveyor	L. F. Von Wimpfen	"	January 1, 1882
Coroner	D. A. Stewart	"	January 1, 1882
Clerk District Court	J. M. Sheardown	Four years.	January 1, 1882
Court Commissioner	W. A. Allen	Three years.	January 1, 1882
Superintendent of Schools	O. M. Lord	Two years.	December 1, 1881

WRIGHT COUNTY.

County Seat, Buffalo.

Office.	Incumbent.	Term of Office.	Commencement of Term.	
Auditor	J. N. Stacy	Two years.	March	1, 1883
Treasurer	Nathan Warner	"	March	1, 1882
Sheriff	John C. Nugent	"	January	1, 1882
Register of Deeds	Fred Brandes	"	January	1, 1882
Judge of Probate	David Cochran	"	January	1, 1882
Attorney	A. Y. Eaton.	"	January	1, 1882
Surveyor	E. B. McCord	"	January	1, 1882
Coroner	S. E. Dean	"	January	1, 1882
Clerk District Court	W. W. Brasie	Four years.	January	1, 1880
Court Commissioner	S. A. Putnam	Three years.	January	1, 1881
Superintendent of Schools.	O. J. Steward	Two years.	December	1, 1881

YELLOW MEDICINE COUNTY.

County Seat, Granite Falls.

Office.	Incumbent.	Term of Office.	Commencement of Term.	
Auditor	Henry Bordewich	Two years.	March	1, 1883
Treasurer	Ole O. Lende	"	March	1, 1883
Sheriff	Joseph Fortier	"	January	1, 1883
Register of Deeds	T. Stottenberg	"	January	1, 1883
Judge of Probate	H. S. Berg	"	January	1, 1883
Attorney	C. E. Shannon	"	January	1, 1883
Surveyor	Jonah Peterman	"	January	1, 1883
Coroner	Nels Ericson	"	January	1, 1883
Clerk District Court	K. T. Hazelberg	Four years.	January	1, 1883
Court Commissioner	J. A. Lewis	Three years.	January	1, 1883
Superintendent of Schools.	C. E. Clark	Two years.	December	1, 1881

LIST OF NOTARIES PUBLIC.

IN COMMISSION DECEMBER 1, 1882.

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Avery, Watson G	Concord	Dodge	Dec. 9, 1880
Allis, Frederick	St. Paul	Ramsey	Dec. 1, 1880
Apley, Charles W	Minnesota Lake	Faribault	Dec. 18, 1880
Ankeny, A. T	Minneapolis	Henepin	Jan. 27, 1881
Armstrong, M. K	St. James	Watonwan	Jan. 20, 1881
Adams, David A	Hutchinson	McLeod	Jan. 17, 1881
Andrews, Chas. N	Wells	Faribault	Feb. 1, 1881
Atkins, H. M	Elk River	Sherburne	Feb. 25, 1881
Anderson, C. M	Lac qui Parle	Lac qui Parle	March 12, 1881
Adams, W. H	Hastings	Dakota	March 28, 1881
Andrews, J. W	Owatonna	Steele	April 11, 1881
Allen, W. A	Winona	Winona	April 15, 1881
Alvey, Wm. T	Winnebago City	Faribault	April 25, 1881
Akers, C. N	Red Wing	Goodhue	April 26, 1881
Anderson, O. D	Red Wing	Goodhue	May 24, 1881
Arnold, George B	Kasson	Dodge	June 15, 1881
Ames, Angier	St. Paul	Ramsey	June 21, 1881
Adams, W. T	Elgin	Wabasha	June 25, 1881
Abbott, W. S. M	Minneapolis	Hennepin	July 1, 1881
Alley, John T	Grove City	Meeker	July 18, 1881
Addison, Robert M	Marshall	Lyon	July 18, 1881
Angier, H. M	Litchfield	Meeker	Aug. 29, 1881
Andrews, C. W	Tyler	Lincoln	Sept. 1, 1881
Allen, John A	St. Paul	Ramsey	Sept. 16, 1881
Angier, W. B	Minneapolis	Hennepin	Sept. 20, 1881
Alm, H. A	Benson	Swift	Oct. 1, 1881
Abbott, S. J	Winnebago City	Faribault	Nov. 15, 1881
Anderson, A. F	Red Wing	Goodhue	Dec. 12, 1881
Angell, Wm. H	St. Paul	Ramsey	Dec. 13, 1881
Alvey, John	Delevan Station	Faribault	Dec. 17, 1881
Ackerman, Julius	Young America	Carver	Dec. 17, 1881
Arnold, J. K	Crookston	Polk	Jan. 6, 1882
Ames, A. J	Alexandria	Douglass	Jan. 14, 1882
Addison, S. H	Marshall	Lyon	Jan. 21, 1882
Ackerman, H. S	Kasson	Dodge	Feb. 6, 1882
Albertson, Orris	Battle Lake	Otter Tail	Feb. 6, 1882
Adams, Sam E	Monticello	Wright	March 1, 1882
Alexander, H. W	Moorhead	Clay	March 7, 1882
Arctander, Jno. Wm	Willmar	Kandiyohi	March 16, 1882

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Allyn, Wm. H	Eagle Lake	Blue Earth	March 18, 1882
Ahneman, Henry	Pine Island	Goodhue	April 13, 1882
Andrews, O. A	Preston	Fillmore	March 1, 1882
Alley, J. T	Howard Lake	Wright	April 26, 1882
Armstrong, J. A	Winnebago City	Faribault	May 1, 1882
Aiken, John	Caledonia	Houston	May 1, 1882
Altnow, Henry J	Henderson	Sibley	June 9, 1882
Andrews, C. S	Eyota	Olmsted	June 14, 1882
Atwater, John B.	Minneapolis	Hennepin	July 19, 1882
Ashley, L. M	Spring Valley	Fillmore	Sept. 1, 1882
Albrecht, John N	Glencoe	McLeod	May 11, 1882
Allardyce, Alex	Crookston	Polk	Aug. 3, 1882
Alder, A	Mantorville	Dodge	Sept. 20, 1882
Arnot, John P	Canby	Yellow Medicine	Oct. 16, 1882
Allen, J. P	St. Paul	Ramsey	Oct. 1, 1882
Atkinson, J. B	Litchfield	Meeker	Nov. 8, 1882
Alexander, J. P	Cannon Falls	Goodhue	Nov. 16, 1882
Allen, Hiram W	Detroit	Becker	Nov. 24, 1882
Brout, R. H	Minneapolis	Hennepin	Dec. 1, 1880
Froat, Rich H	Minneapolis	Hennepin	Dec. 1, 1880
Bachelder. Geo. W	Faribault	Rice	Dec. 13, 1880
Bliss, C. H	Rochester	Olmsted	Dec. 15, 1880
Brown. A. C	Willmar	Kandiyohi	Dec. 15, 1880
Benedict, C. H	Lake City	Wabasha	Dec. 6, 1880
Briggs, E. D	Heron Lake	Jackson	Dec. 23, 1880
Baxter, George N	Faribault	Rice	Dec. 15, 1880
Bastings, Theophil	Minneapolis	Hennepin	Dec. 14, 1880
Behrens, John	Milville	Wabasha	Dec. 21, 1880
Burnham, F. W	Fergus Falls	Otter Tail	Dec. 8, 1880
Brooberg, Frank G	Atwater	Kandiyohi	Dec. 8, 1880
Biwer, Frank S	St. Paul	Ramsey	Dec. 11, 1880
Brown, E. P	Faribault	Rice	Dec. 10, 1880
Berry, Fred G	Minneapolis	Hennepin	Dec. 8, 1880
Butts, E. G	Stillwater	Washington	Jan. 1, 1881
Babcock, E. L	Amherst	Fillmore	Jan. 25, 1881
Button, Chas. H	Minneapolis	Hennepin	Jan. 3, 1881
Berning. Henry	St. Michael	Wright	Jan. 1, 1881
Boor, Peter J	Hastings	Dakota	Jan. 22, 1881
Bofferding. M. J	Minneapolis	Hennepin	Jan. 21, 1881
Breen, L T	Herman	Grant	Jan. 22, 1881
Bradford, George A	Madelia	Watonwan	Jan. 5, 1881
Brandwold. Knud H	Tumuli	Otter Tail	Jan. 15, 1881
Blom, Elijah	Minneapolis	Hennepin	Jan. 10, 1881
Bell. James F	Fergus Falls	Otter Tail	Jan. 4, 1881
Black, George A.	St. Paul	Ramsey	Jan. 12, 1881
Brown, John K	Jackson	Jackson	Feb. 4, 1881
Berge, Ole S	Rushford	Fillmore	March 3, 1881
Barrett, Wm	St. Cloud	Stearns	Jan. 20, 1881
Burger, Louis	Henderson	Sibley	Feb. 8, 1881
Branham, H. L	Litchfield	Meeker	Feb. 12, 1881
Bowe, Gilbert L	Moorhead	Clay	Feb. 15, 1881
Billings, Otis L	Delano	Wright	Feb. 22, 1881
Barker, A. P	Princeton	Mille Lacs	Feb. 17, 1881
Bull, B. S	Minneapolis	Hennepin	Feb. 17, 1881
Burling. Edward	Alma City	Waseca	Feb. 14, 1881
Bixler, Moses	St. Paul	Ramsey	Feb. 23, 1881
Barnum, A. K	St. Paul	Ramsey	March 5, 1881

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Blodgett, F. E	Pelican Rapids	Otter Tail	March 18, 1881
Bonner, David L	Stewartville	Olmsted	March 26, 1881
Butler, Henry L	Rochester	Olmsted	March 21, 1881
Borlang, Botaff J	Norway	Goodhue	March 21, 1881
Bryant, Robert S	Minneapolis	Hennepin	March 31, 1881
Beman, S. S	St. Charles	Winona	April 6, 1881
Byholt, Anders S	Bratsberg	Fillmore	April 2, 1881
Bayle, Stephen S	St. Paul	Ramsey	April 12, 1881
Boyd, John D	Fergus Falls	Otter Tail	April 14, 1881
Blaisdell, H. M	Fairmont	Martin	April 17, 1881
Briggs, R. R	Moorhead	Clay	March 19, 1881
Bartleson, C. J	Minneapolis	Hennepin	April 2, 1881
Bliss, T. H	Rochester	Olmsted	April 16, 1881
Blecker, Ed. F. L	Minneapolis	Hennepin	April 19, 1881
Berkelmann, Geo	Duluth	St. Louis	May 2, 1881
Bottineau, J. B	Minneapolis	Hennepin	May 4, 1881
Braden, J. Q. A	Benson	Swift	May 6, 1881
Bowen, Millard F	Minneapolis	Hennepin	May 6, 1881
Belyca, A. C	Herman	Grant	May 11, 1881
Bowers, John H	Redwood Falls	Redwood	May 30, 1881
Boardman, A. J	Minneapolis	Hennepin	May 13, 1881
Burlingame, J. M	Owatonna	Steele	May 25, 1881
Briggs, Thomas R	Howard Lake	Wright	June 1, 1881
Baasen, Francis	New Ulm	Brown	June 1, 1881
Brown, Zelora E	Minneapolis	Hennepin	June 6, 1881
Bronson, William G	Stillwater	Washington	June 10, 1881
Borer, F. A	Le Sueur Center	Le Sueur	June 23, 1881
Brown, Frank K	Benson	Swift	June 13, 1881
Bidde, Charles P	Minneapolis	Hennepin	June 17, 1881
Broz, W. S	Prague, (Scott Co)	Le Sueur	June 16, 1881
Baker, H. E	St. Paul	Ramsey	June 20, 1881
Brown, F. S	Tracy	Lyon	June 16, 1881
Booth, J. W	Rochester	Olmsted	June 27, 1881
Baltes, Peter J	New Market	Scott	Aug. 7, 1881
Barber, H. H	Brainerd	Crow Wing	June 13, 1881
Barke, J. O	Fergus Falls	Otter Tail	July 2, 1881
Burke, Jr., Frank	Duluth	St. Louis	July 8, 1881
Burgess, J. L	Eagle Lake	Blue Earth	July 15, 1881
Buswell, George W	Blue Earth City	Faribault	July 18, 1881
Becker, Edwin C	St. Paul	Ramsey	July 19, 1881
Black, Mahlon	Minneapolis	Hennepin	Aug. 2, 1881
Byan, C P	Duluth	St. Louis	Aug. 6, 1881
Baldwin, D. M	Red Wing	Goodhue	Aug. 11, 1881
Barrett, Wm	St. Paul	Ramsey	Aug. 17, 1881
Brooberg, Frank G	Fishers Landing	Polk	Aug. 19, 1881
Bruener, Theo	St. Cloud	Stearns	Aug. 27, 1881
Brown, Berry F	Fergus Falls	Otter Tail	Sept. 1, 1881
Baxter, Luther L	Chaska	Carver	Sept. 10, 1881
Bassett, Elford S	Faribault	Rice	Sept. 12, 1881
Borst, Wilson	Sherburne	Martin	Sept. 12, 1881
Bryant, James	Minneapolis	Hennepin	Sept. 16, 1881
Barber, Lloyd	Winona.	Winona	Sept. 16, 1881
Byrness, T. E	Minneapolis	Hennepin	Sept. 23, 1881
Boright, Washington	Le Sueur	Le Sueur	Sept. 30, 1881
Beals, James B	St. Paul	Ramsey	Oct. 11, 1881
Brown, A. G		Hennepin	Oct. 18, 1881
Barnes, N. F	St. Cloud	Stearns	Oct. 21, 1881

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Bugbee, D. L	Anoka	Anoka	Oct. 31, 1881
Burdett, D. B	Sleepy Eye	Brown	Nov. 1, 1881
Brooks, I. T	Renville	Renville	Nov. 1, 1881
Berryhill, C. J		Ramsey	Nov. 1, 1881
Benies, V. E	Chatfield	Fillmore	Nov. 1, 1881
Barr, G. T	Little Falls	Morrison	Nov. 5, 1881
Berg, O. J	Lake Park	Becker	Nov. 11, 1881
Bryant, C. S	St. Paul	Ramsey	Nov. 14, 1881
Braden, C. E	Minneapolis	Hennepin	Nov. 15, 1881
Baird, L. D	Austin	Mower	Nov. 18, 1881
Barbaras, G	Hastings	Dakota	Nov. 20, 1881
Banfield, N. F	Austin	Mower	Nov. 18, 1881
Buel, Warren	Albert Lea	Freeborn	Nov. 26, 1881
Bradenburg, A	Fergus Falls	Otter Tail	Nov. 29, 1881
Benson, C. S	St. Cloud	Stearns	Dec. 4, 1881
Brandes, Fred	Buffalo	Wright	Dec. 16, 1881
Brophy, John	Elk River	Sherburne	Dec. 22, 1881
Bower, Charles J	St. Paul	Ramsey	Dec. 27, 1881
Bowen, Le Roy	Mapleton	Blue Earth	Dec. 27, 1881
Bevans, H. T	Morris	Stevens	Jan. 1, 1882
Brassett, Thomas W	Lac qui Parle	Lac qui Parle	Jan. 2, 1882
Butturff, S	Marshall	Lyon	Jan. 3, 1882
Burkhard, Theodore	St. Paul	Ramsey	Jan. 5, 1882
Bennett, L. B	Worthington	Nobles	Jan. 10, 1882
Bennett, George M	Sauk Centre	Stearns	Feb. 1, 1882
Brodish, J. H	Minneapolis	Hennepin	Jan. 15, 1882
Brookins, George	St. Paul	Ramsey	Jan. 16, 1882
Barker, A. F	Monticello	Wright	Jan. 17, 1882
Baldwin, C. H	Terrace	Pope	Jan. 21, 1882
Brackenridge, W. L	Rochester	Olmsted	Jan. 24, 1882
Brooks, David	Minneapolis	Hennepin	Jan. 25, 1882
Bassett, H. S	Preston	Fillmore	Jan. 27, 1882
Broberg, Peter	New London	Kandiyohi	Feb. 1, 1882
Breving, O. L	Hancock	Stevens	Feb. 1, 1882
Brusegaard, Thomas	Red Wing	Goodhue	Feb. 10, 1882
Barnum, E. P	Sauk Centre	Stearns	Feb. 10, 1882
Bostwick, C. E	Duluth	St. Louis	Dec. 1, 1882
Bornarth, Charles	Shakopee	Scott	Jan. 22, 1882
Brust, Wm	New Ulm	Brown	Jan. 24, 1882
Brownell, Lewis	Waseca	Waseca	Jan. 30, 1882
Bretzke, Herman A	Sauk Centre	Stearns	Feb. 1, 1882
Bailey, F. B	Minneapolis	Hennepin	Feb. 1, 1882
Bacon, G. W	St. Paul	Ramsey	Feb. 4, 1882
Beandett, Albert	Crookston	Polk	Feb. 7, 1882
Bertch, C. W	St. Paul	Ramsey	Feb. 8, 1882
Baker, W. P	Granite Falls	Yellow Medicine	Feb. 17, 1882
Biderberg, Herman	Claremont	Dodge	Feb. 24, 1882
Brown, J. E	Mapleton	Blue Earth	March 1, 1882
Byers, John F	Minneapolis	Hennepin	March 7, 1882
Bockler, Joseph	St. Charles	Winona	March 8, 1882
Baier, William H	Jordan	Scott	March 13, 1882
Boynton, L. J	Red Wing	Goodhue	Feb. 12, 1882
Burdick, L. P	Beardsley	Big Stone	March 15, 1882
Bishop, James H	Minneapolis	Hennepin	March 17, 1882
Buck, J. R	Winona	Winona	March 20, 1882
Bryant, David N	Mendota	Dakota	March 22, 1882
Barron, C. H	Red Wing	Goodhue	March 22, 1882
Berry, F. A	Faribault	Rice	Feb. 27, 1882

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Brady, J. L.	Princeton	Mille Lacs	Mar. 27, 1882
Briggs, E. A	Kingston	Meeker	Mar. 28, 1882
Brusletten, C. L	Kenyon	Goodhue	Mar. 28, 1882
Bradish, John	Janesville	Waseca	April 1, 1882
Barto, Alphonso	Sauk Centre	Stearns	April 8, 1882
Brower, J. V	Sauk Centre	Stearns	April 1, 1882
Bussen, M. D	St. Cloud	Stearns	April 8, 1882
Burwell, D. M	Minnetonka	Hennepin	April 10, 1882
Brown, R. N	Austin	Mower	April 10, 1882
Brooke, Hial D	Lake Park	Becker	April 17, 1882
Box, Williams	Crookston	Polk	April 13, 1882
Brower, Davis	Crookston	Polk	April 25, 1882
Bohm, Thomas	Waseca	Waseca	Mar. 30, 1882
Bell, S. H	Lake City	Wabasha	Mar. 31, 1882
Bartlett, A. H	Glenville	Freeborn	April 3, 1882
Bromley, N. P	Kasson	Dodge	April 5, 1882
Beardsley, B. F	Benson	Swift	April 12, 1882
Bowen, Edgar C	St. Paul	Ramsey	April 12, 1882
Burnside, M. C	Sleepy Eye Lake	Brown	April 22, 1882
Booth, Frank W	Minneapolis	Hennepin	April 29, 1882
Bunker, Charles S	St. Paul	Ramsey	Mar. 24, 1882
Bowe, Daniel	Northfield	Rice	April 10, 1882
Barnett, James	Oronoco	Olmsted	April 12, 1882
Ballard, J. F	St. Paul	Ramsey	April 22, 1882
Beggs, R. C	St. Paul	Ramsey	May 2, 1882
Backman, A	Whalen	Fillmore	May 5, 1882
Brenna, Jr., Ole O	Granite Falls	Lyon	May 15, 1882
Bartlett, F. V	Mankato	Blue Earth	May 19, 1882
Brinmer, W. D	Dayton	Hennepin	May 24, 1882
Bars, H. S	Minneapolis	Hennepin	May 22, 1882
Baker, A. D	Bluffton	Otter Tail	May 1, 1882
Brewster, George H	Mankato	Blue Earth	May 31, 1882
Billson, Hon. W. W	Duluth	St. Louis	May 31, 1882
Bradbury, W. H	Lanesboro	Fillmore	June 2, 1882
Brimmer, W. D	Dayton	Hennepin	June 17, 1882
Brownell, W. H	Stillwater	Washington	June 20, 1882
Bierce, C. A	Winona	Winona	June 1, 1882
Brown, P	Lake City	Wabasha	June 29, 1882
Birum, Andrew	Redwood Falls	Redwood	July 1, 1882
Budd, Charles H	Montevideo	Chippewa	July 5, 1882
Berry, M. E	Mapleton	Blue Earth	July 5, 1882
Bass, James W	Red Wing	Goodhue	July 7, 1882
Brown, Robert	Royalton	Morrison	July 12, 1882
Brace, C. S	Mable	Fillmore	July 14, 1882
Bell, Charles N	St. Paul	Ramsey	July 15, 1882
Bishop, H. H	Faribault	Rice	July 21, 1882
Burbank, D	Fergus Falls	Otter Tail	Aug. 1, 1882
Boardman, F. H	Minneapolis	Hennepin	July 20, 1882
Bucklen, De Forest	Fisher's Landing	Polk	Aug. 12, 1882
Bell, Fred S	Winona	Winona	Aug. 22, 1882
Botkin, S. W	Minneapolis	Hennepin	Aug. 28, 1882
Brown, Samuel J	Brown's Valley	Traverse	Sept. 1, 1882
Byrnes, John T	Minneapolis	Hennepin	July 1, 1882
Brown, M. D	Hector	Renville	Sept. 1, 1882
Berry, C. H	Winona	Winona	Sept. 14, 1882
Brooks, Edward P	Lu Verne	Rock	Sept. 15, 1882
Baily, A. M	Minneapolis	Hennepin	Sept. 20, 1882
Burton, Theodore J	Alden	Freeborn	Sept. 23, 1882

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Butterfield, M. D.	Anoka	Anoka	Sept. 25, 1882
Broker, A. G	Wadena	Wadena	Sept. 28, 1882
Bowe, Arthur E	Northfield	Rice	Sept. 29, 1882
Benham, A	Red Wing	Goodhue	Aug. 21, 1882
Bennett, Jr., J. R	St. Cloud	Stearns	Sept. 19, 1882
Beals, James B	St. Paul	Ramsey	Oct. 2, 1882
Beverage, Robert	Red Wing	Goodhue	Oct. 10, 1882
Brown, A. L	Brownton	McLeod	Oct. 24, 1882
Bower, Charles J	Duluth	St. Louis	Oct. 25, 1882
Blekre, Z. O	New Ulm	Brown	Oct. 28, 1882
Bramhall, W. E		Ramsey	Nov. 15, 1882
Blethen, O. A	Rochester	Olmsted	Nov. 15, 1882
Booth, C. E	Alden	Freeborn	Nov. 17, 1882
Bradford, I. H	Verndale	Wadena	Nov. 18, 1882
Bryant, J. C	St Paul	Ramsey	Nov. 22, 1882
Baker, S. H	Minneapolis	Hennepin	Nov. 25, 1882
Blair, Frank P	St. Paul	Ramsey	Nov. 20, 1882
Culross, Joseph	Alexandria	Douglas	Dec. 4, 1880
Corliss, E. E	Fergus Falls	Otter Tail	Dec. 18, 1880
Childs, L. L	Red Wing	Goodhue	Dec. 22, 1880
Chadbourn, C. H	Rochester	Olmsted	Dec. 3, 1880
Chew, Fielder B	Morris	Stevens	Jan. 1, 1881
Clay, Smith B	Northfield	Rice	Jan. 17, 1881
Cochran, J. Z	Smith Lake	Wright	Jan. 21, 1881
Crawford, E F	Murdock	Swift	Feb. 1, 1881
Collester, E. B	Waseca	Waseca	Jan. 26, 1881
Case, Rollin A	Chatfield	Fillmore	Jan. 11, 1881
Conner, Harrison S	Minneapolis	Hennepin	Jan. 7, 1881
Coon, William L	Blue Earth	Mankato	Jan. 6, 1881
Crane, P. B	Montevideo	Chippewa	Jan. 7, 1881
Coon, Edwin	Rochester	Olmsted	Jan. 20, 1881
Cashel, John L	Faribault	Rice	Feb. 28, 1881
Chase, B	Wells	Faribault	Feb. 16, 1881
Clovett, J. R	Hastings	Dakota	Feb. 15, 1881
Cady, William	Reed's Landing	Wabasha	Feb. 22, 1881
Conarty, S. M	Benson	Swift	March 1, 1881
Cross, Judson N	Minneapolis	Hennepin	March 14, 1881
Card, E. M	Lake City	Wabasha	Feb. 23, 1881
Clarke, Amos T	Champlin	Hennepin	March 9, 1881
Cochrane, DeWitt	Le Sueur	Le Sueur	March 15, 1881
Campbell, S. L	Wabasha	Wabasha	March 15, 1881
Chandler, J. O	Janesville	Waseca	April 1, 1881
Carson, Robert B	Detroit	Becker	April 1, 1881
Clarke, S. C	St. James	Watonwan	April 6, 1881
Chamberlain, D. T	Hastings	Dakota	April 13, 1881
Cory, H. W	St. Paul	Ramsey	March 15, 1881
Christenson, John	Swede Grove	Meeker	April 11, 1881
Cook, Levi L	Minneapolis	Hennepin	April 20, 1881
Comstock, S J	Olivia	Renville	April 30, 1881
Cummins, R. W	Minneapolis	Hennepin	May 14, 1881
Christensen, Wm. P	Olivia	Renville	May 14, 1881
Cowles, C S	Zumbrota	Goodhue	May 14, 1881
Canfield, Daniel L	Mankato	Blue Earth	May 17, 1881
Cochrane, John M	Le Sueur	Le Sueur	May 20, 1881
Carson, W. J	Benson	Swift	May 21, 1881
Crone, Henry	New Ulm	Brown	May 24, 1881
Coumy, Edward W	De Graff	Swift	May 26, 1881
Carr, J. D	Sauk Center	Stearns	May 28, 1881

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Copeland, G. A	Glencoe	McLeod	May 26, 1881
Clark, George H	Mankato	Blue Earth	June 14, 1881
Chapman, T. M	Spring Valley	Fillmore	June 15, 1881
Carr, Joel G	Adrian	Nobles	June 15, 1881
Corning, J. W. L	St. Paul	Ramsey	June 16, 1881
Case, John H	Faribault	Rice	June 25, 1881
Clark, P	Ortonville	Big Stone	June 23, 1881
Claghorn, Josiah L	Waseca	Waseca	March 1, 1881
Cray, Lorin	Lake Crystal	Blue Earth	July 12, 1881
Comnick, A. W	St. Paul	Ramsey	July 20, 1881
Collins, L. W	St. Cloud	Stearns	July 20, 1881
Cochrane, John M	Madelia	Watonwan	July 29, 1881
Clemmons, F. S	Stillwater	Washington	July 29, 1881
Caufield, E. H	La Verne	Rock	Aug. 1, 1881
Crosby, Alton	Willmar	Kandiyohi	Aug. 5, 1881
Chadbourne, S. W	Brown's Valley	Traverse	Aug. 6, 1881
Chatfield, E. C	Minneapolis	Hennepin	Aug. 9, 1881
Cray, Willard R	Minneapolis	Hennepin	Aug. 12, 1881
Chowen, H. O	Minneapolis	Hennepin	Aug. 18, 1881
Cates, George W	Minneapolis	Hennepin	Aug. 27, 1881
Cronen, John	Le Saeur	Le Sueur	Aug. 28, 1881
Comfort, A. H	St. Paul	Ramsey	Aug. 30, 1881
Culver, George N	Minneapolis	Hennepin	Aug. 30, 1881
Clarke, George A	Mankato	Blue Earth	Sept. 9, 1881
Case, John L	Lake Benton	Lincoln	Sept. 13, 1881
Campbell, S. N	New Ulm	Brown	Sept. 23, 1881
Chase, A. E	Canby	Yellow Medicine	Oct. 1, 1881
Courtwright, Wm. V	Cordova	Le Sueur	Oct. 1, 1881
Craig, James E	Pipe Stone	Pipe Stone	Oct. 1, 1881
Carleton, Frank H	Minneapolis	Hennepin	Oct. 11, 1881
Chapman, C. E	Fergus Falls	Otter Tail	Oct. 1, 1881
Childs, A. M	Carman	Polk	Oct. 17, 1881
Castle, C. M	Minneapolis	Hennepin	Oct. 18, 1881
Carle, J. A	Northfield	Rice	Oct. 22, 1881
Comfort, O. H	St. Paul	Ramsey	Oct. 24, 1881
Clarke, E	Worthington	Nobles	Oct. 25, 1881
Cathcart, J. W	St. Paul	Ramsey	Oct. 30, 1881
Cunningham, W. H	Morris	Stevens	Oct. 31, 1881
Corser, E. S	Minneapolis	Hennepin	Nov. 1, 1881
Callender, J. W	Jordan	Scott	Nov. 21, 1881
Cochran, S. E	Smith Lake	Wright	Nov. 28, 1881
Coleman, R. W	Moorhead	Clay	Nov. 30, 1881
Cadwell, Francis	Le Sueur	Le Sueur	Nov. 18, 1881
Carpenter, Henry L	Minneapolis	Hennepin	Dec. 2, 1881
Cameron, S. T	Minneapolis	Hennepin	Dec. 5, 1881
Cardoza, Isaac N	St. Paul	Ramsey	Dec. 9, 1881
Chamberlin, G. C	Jackson	Jackson	Dec. 10, 1881
Carter, T. G	St. Peter	Nicollet	Dec. 10, 1881
Cornman, Charles A	Minneapolis	Hennepin	Dec. 19, 1881
Clark, S. C	Austin	Mower	Dec. 20, 1881
Crandall, Wm. H	Owatonna	Steele	Dec. 21, 1881
Cole, John L	Minneapolis	Hennepin	Dec. 31, 1881
Chidester, Wm. E	Alexandria	Douglas	Jan. 2, 1882
Carrier, N. B	Minneapolis	Hennepin	Jan. 2, 1882
Chapel, Albert	Farmington	Dakota	Jan. 10, 1882
Colyer, W. L	Morris	Stevens	Jan. 14, 1882
Chadbourne, C. N	Rochester	Olmsted	Jan. 15, 1882
Clarke, Z. B	Benson	Swift	Jan. 16, 1882

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Comfort, F. V	Stillwater	Washington	Jan. 17, 1882
Colburn, N. P	Preston	Fillmore	Jan. 20, 1882
Carver, O. F	St. Cloud	Stearns	Jan. 21, 1882
Chowen, George W	Minneapolis	Hennepin	Jan. 24, 1882
Cash, Daniel G	Duluth	St. Louis	Jan. 24, 1882
Cook, J H	Minneapolis	Hennepin	Jan. 25, 1882
Campbell, E. A	Eagle City	Sibley	Feb. 8, 1862
Clausen, L F	Owatonna	Steele	Feb. 1, 1882
Chase, C. P	Fairmont	Martin	Feb. 23, 1882
Christlieb, B. F	Long Lake	Hennepin	Feb. 28, 1882
Castle, J. N	St. Paul	Ramsey	March 1, 1882
Carpenter, Niles	Rushford	Fillmore	March 1, 1882
Criswell, John	Fountain	Fillmore	March 1, 1882
Carpenter, Ira M	Little Sauk	Todd	March 1, 1882
Coe, Amos B	Minneapolis	Hennepin	March 4, 1882
Channell, Lewell P	Minneapolis	Hennepin	March 4, 1882
Crane, E. B	Austin	Mower	March 6, 1882
Cook, S	Fisher	Polk	March 10, 1832
Chadburn, Nathaniel	Blue Earth City	Faribault	March 10, 1882
Cochrane, Wm. H	Buffalo	Wright	March 11, 1882
Chandler, J. O	Zanesville	Waseca	March 15, 1882
Counteyman, A. D.	Appleton	Swift	March 15, 1882
Child, E. A	Glencoe	McLeod	March 15, 1882
Chistensen, Ole A	Atwater	Kandiyohi	March 17, 1882
Cummins, Horace	Eagle Lake	Blue Earth	March 18, 1882
Clark, Kenneth	St. Paul	Ramsey	March 21, 1882
Commick, Wm. G	Henderson	Sibley	March 22, 1882
Clarke, L. O	Glenwood	Pope	March 28, 1882
Collector, M. D. L	Waseca	Waseca	March 16, 1882
Clapp, H. C. E	Fergus Falls	Otter Tail	April 1, 1882
Cornell, C. C	Owatonna	Steele	April 10, 1882
Couillard, C. A	Wadena	Wadena	April 13, 1882
Comfort, A. H	Stillwater	Washington	April 15, 1882
Cooper, John	St. Cloud	Stearns	April 19, 1882
Crandall, A. A	Rochester	Olmsted	April 6, 1882
Choller, A. L	Benson	Swift	April 10, 1882
Cowie, Joseph F	Fergus Falls	Otter Tail	April 12, 1882
Cornell, F. B	Minneapolis	Hennepin	April 29, 1882
Christianson, C. O	Aldal	Polk	May 1, 1882
Capehart, A. R	St. Paul	Ramsey	May 4, 1882
Campbell, C. L	Jackson	Jackson	May 6, 1882
Carver, John E	St. Cloud	Stearns	May 9, 1882
Castle, Ira W	Stillwater	Washington	May 13, 1882
Crosby, H. M	Willmar	Kandiyohi	May 15, 1882
Crosby, A M	Adrian	Nobles	May 19, 1882
Clapp, Eton	Adrian	Nobles	May 19, 1882
Caulfield, John	St. Paul	Ramsey	May 22, 1882
Cole, Wm. H	Lake Crystal	Blue Earth	May 1, 1882
Cremer, Wm. J	St. Paul	Ramsey	May 27, 1882
Costain, John	Hawley	Clay	April 6, 1882
Collom, J. F	Minneapolis	Hennepin	May 27, 1882
Chittenden, E. S	St. Paul	Ramsey	June 6, 1882
Cater, John W	Princeton	Mille Lacs	June 9, 1882
Carver, H. L	St. Paul	Ramsey	June 13, 1882
Cunningham, W H	Albert Lea	Freeborn	June 12, 1882
Chase, Sylvester B	Minneapolis	Hennepin	June 21, 1882
Crump, S. D	Zanesville	Waseca	June 26, 1882

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Cole, J. T.	Lake Benton	Lincoln	July 1, 1882
Chapman, A. G.	Lake Benton	Lincoln	June 23, 1882
Cole, B. F.	Minneapolis	Hennepin	June 28, 1882
Crosby, Thomas F.	Plainview	Wabasha	July 1, 1882
Cosgrove, J. R. S.	Le Sueur	Le Sueur	July 5, 1882
Coates, Joseph	Sauk Rapids	Benton	Feb. 1, 1882
Chute, C. R.	Minneapolis	Hennepin	Aug. 1, 1882
Cornish, J. F.	Lu Verne	Rock	Aug. 9, 1882
Cobb, Henry R.	Park Rapids	Cass	Aug. 10, 1882
Cone, M. D.	Minneapolis	Hennepin	Aug. 18, 1882
Chapman, C. A.	Mankato	Blue Earth	Aug. 19, 1882
Culkin, W. E.	Waverly Mills	Wright	Aug. 29, 1882
Case, J. A.	Montevideo	Chippewa	Sept. 9, 1882
Coe, George B.	Morris	Stevens	Sept. 14, 1882
Cahoon, George C.	Sauk Center	Stearns	Sept. 15, 1882
Cowing, J.		Pine	Sept. 28, 1882
Coon, Galen H.	Northfield	Rice	Oct. 2, 1882
Chestnut, A. R.	Minneapolis	Hennepin	Oct. 3, 1882
Cutler, Fred A.	Minneapolis	Hennepin	Oct. 3, 1882
Christenson, F. S.	Rush City	Chisago	Oct. 6, 1882
Condit, A. J.	Minneapolis	Hennepin	Oct. 9, 1882
Cilley, W. S.	Minneapolis	Hennepin	Oct. 25, 1882
Cyrus, E. E.	St. Paul	Ramsey	Nov. 1, 1882
Cutler, Frank	Northfield	Rice	Nov. 8, 1882
Cravath, Paul D.	Minneapolis	Hennepin	Nov. 13, 1882
Carson, W. J.	Benson	Pope	Nov. 14, 1882
Chadbourn, W. R.	Blue Earth City	Faribault	Nov. 17, 1882
Conant, Charles E.	Minneapolis	Hennepin	Nov. 20, 1882
Chapman, F. D.	Sunrise	Chisago	Nov. 25, 1882
Dufour, P. A.	Crookston	Polk	Dec. 28, 1880
Donahower, J. C.	St. Peter	Nicollet	Dec. 30, 1880
DeLong, Dominie	St. Paul	Ramsey	Dec. 11, 1880
Drew, Frank	New Ulm	Brown	Dec. 1, 1880
Dyckman F. H.	Sleepy Eye	Brown	Dec. 1, 1880
Dibble, W. S.	Marshall	Lyon	Dec. 20, 1880
Dopkins, E. A.	Morris	Stevens	Jan. 31, 1881
Daniels, M. J.	Rochester	Olmsted	Jan. 11, 1881
De Boss, John	Bigelow	Nobles	Jan. 1, 1881
Dana, Charles F.	St. Paul	Ramsey	Feb. 1, 1881
Dean, F. B.	Glencoe	McLeod	Jan. 13, 1881
Darby, John W.	Paynesville	Stearns	Jan. 18, 1881
Davis, C. R.	St. Peter	Nicollet	Feb. 25, 1881
Doe, W. L.	Appleton	Swift	Feb. 19, 1881
Davidson, C. H.	Austin	Mower	March 14, 1881
Douglas, E.	Minneapolis	Hennepin	March 16, 1881
Dilley, J. F.	Chaska	Carver	March 15, 1881
Demeules, Z.	Minneapolis	Hennepin	April 1, 1881
Drew, Jerome B.	Marshall	Lyon	April 1, 1881
Dean, E. C.	Pipe Stone City	Pipe Stone	April 5, 1881
Danforth, S. H.	Brunswick	Kanabec	April 5, 1881
DuToit, George A.	Chaska	Carver	April 11, 1881
Drake, J. M.	Banks	Faribault	April 12, 1881
Dixon, A. C.	Winona	Winona	March 31, 1881
Davidson, W. N.	Lu Verne	Rock	Jan. 11, 1881
Doescher, A. R.	Le Sueur	Le Sueur	April 20, 1881
Devlin, Joseph	Dodge Center	Dodge	April 22, 1881
Darling, George E.	Morris	Stevens	May 4, 1881
Day, H. G.	Lanesboro	Fillmore	May 4, 1881

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Davies, E. W	Pipe Stone	Pipe Stone	May 11, 1881
Day, E. P. I	Glencoe	McLeod	May 30, "
Darling, W. L	Alexandria	Douglas	May 26, "
Davee, Wallace V	Clear Lake	Sherburne	May 27, "
Daniels, H. L	Redwood Falls	Redwood	June 1, "
Doran, S. L	Kindred	Wadena	June 1, "
Dassel, Bernhard	Ortonville	Big Stone	June 26, "
Daly, Peter	Hallock	Kittson	July 25, "
Davis, L. G	Sleepy Eye	Brown	Aug. 1, "
Davis, L. M	Sauk Centre	Stearns	Aug. 3, "
Donaldson, R. S	Stewart	McLeod	Aug. 14, "
Duel, Julius	Stillwater	Washington	Sept. 15, "
Denton, M. G	Rochester	Olmsted	Oct. 6, "
Detamore, Samuel	Beaver	Winona	Oct. 22, "
Dahl, John C	New Ulm	Brown	Oct. 17, "
Drew, M. B	Marshall	Lyon	Oct. 20, "
Duncan, William	Sleepy Eye	Brown	Oct. 22, "
Dittman, C. M	St. Paul	Ramsey	Nov. 4, "
Drew, C. C	Pipe Stone	Pipe Stone	Nov. 8, "
Donnelly, S. J	Nininger	Dakota	Nov. 12, "
Dahl, Ole H	Canby	Yellow Medicine	Aug. 30, "
Dorothy, F. B	Taylors Falls	Chisago	Sept. 23, "
Davis, R. S	Stillwater	Washington	Nov. 17, "
Duncan, C. A	Duluth	St. Louis	Nov. 21, "
Doran, P. J	Faribault	Rice	Nov. 26, "
De Berry, John R	Iona	Murray	Nov. 25, "
Doherty, Timothy	Minneapolis	Hennepin	Dec. 9, "
Davis, O. B	Glencoe	McLeod	Dec. 13, "
Dassett, Martin L	Madelia	Watonwan	Dec. 13, "
Donahue, William H	Minneapolis	Hennepin	Dec. 30, "
Davis, William M	Fulda	Murray	Jan. 2, 1882
Donn, L. E	Albert Lea	Freeborn	Jan. 2, "
Dunn, Edwin	Eyota	Olmsted	Jan. 20, "
Donaldson, A. B	Alexandria	Douglas	Jan. 27, "
Durland, James B	Moorhead	Clay	Jan. 30, "
Dayan, Albert G	Minneapolis	Hennepin	Feb. 2, "
Drew, M. K	Winona	Winona	Feb. 3, "
Davis, Frank F	Minneapolis	Hennepin	Feb. 13, "
Davidson, A. D	Minneota	Lyon	Feb. 18, "
Drew, Walter	Audubon	Becker	Feb. 21, "
Day, R. H	Minneapolis	Hennepin	Feb. 23, "
Decker, A. L. M	Tenhassen	Martin	Feb 25, "
Davis, Joseph C	Crookston	Polk	March 17, "
Dickey, W. B	Forest Mills	Goodhue	Feb. 24, "
Davidson, A. Y	Minneapolis	Hennepin	March 24, "
Davis, F. A	Faribault	Rice	March 25, "
Dayton, F. H	Stillwater	Washington	April 6, "
Duffy, James A	Hastings	Dakota	April 1, "
Davidson, John X	St. Paul	Ramsey	April 19, "
Duncan, Robert J		Winona	April 21, "
Dunham, Samuel C	Faribault	Rice	April 24, "
Davis, D. C	Hartford	Todd	April 10, "
Davis, Thomas A	New Richland	Waseca	April 13, "
Drake, R. J	Northfield	Rice	April 26, "
Dendon, Frank	Blue Earth City	Faribault	April 29, "
Dencke, A. H	Avoca	Murray	April 29, "
Day, H. R	Pelican Rapids	Otter Tail	March 30, "
Davis, Albert W	Minneapolis	Hennepin	May 9, "

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Ferguson, Cassius M	Minneapolis	Hennepin	March 22. 1882
Frederick, A	Stillwater	Washington	March 23. 1882
Frater, A. W	Brainerd	Crow Wing	March 27, 1882
Fee, Charles S	St. Paul	Ramsey	March 29. 1882
Farmer, J. D	Spring Valley	Fillmore	Feb. 27, 1882
Farquar, John W	Grand Meadow	Mower	April 1, 1882
Fitch, Edwin S	Hastings	Dakota	April 3. 1882
Fales, Grenville	St. Paul	Ramsey	April 17. 1882
Flack, George W	St. Paul	Ramsey	April 26, 1882
Ford, Daniel K	St. Paul	Ramsey	May 1, 1882
Flynn, Daniel	Litchfield	Meeker	May 9, 1882
Fletcher, Geo. H	Minneapolis	Hennepin	May 12, 1882
Flanner, C. W	Murdock	Swift	May 27, 1882
Foster, J. C	Sauk Center	Stearns	June 9, 1882
Foland, W. A	Benson	Swift	June 12, 1882
Ford, S. E	Preston	Fillmore	June 12, 1882
Fitzgerald, Pat	Winona	Winona	June 12, 1882
Fernald, G. S	Brainerd	Crow Wing	July 10, 1882
Flint, George J	St. Paul	Ramsey	July 13, 1882
Finnegan, A. J	Minneapolis	Hennepin	June 17, 1882
Forbes, A. C	Marshall	Lyon	June 9, 1882
Fryar, B. S	Minneapolis	Hennepin	Aug. 14, 1882
Fife, Edgar P	Minneapolis	Hennepin	Sept. 15, 1882
Fish, Daniel	Minneapolis	Hennepin	Oct. 5, 1882
Farnam, Henry M	Minneapolis	Hennepin	Nov. 1, 1882
Gerald, T. T. Fitz	Woodstock	Pipe Stone	Dec. 7, 1880
Gerdtzen, Ernst A	Winona	Winona	Dec. 12, 1880
Gove, E. A	Canby	Yellow Medicine	Dec. 2, 1880
Getty, Daniel	White Bear Lake	Ramsey	Dec. 3, 1880
Gorwell, John	Willmar	Kandiyohi	Jan. 13, 1881
Greene, M. W	Wells	Faribault	Feb. 1, 1881
Griswold, W. W	Morris	Stevens	Feb. 1, 1881
Gaul, Z. S	St. Peter	Nicollet	Feb. 15, 1881
Gatshall, M. B. V	Minneapolis	Hennepin	Feb. 17, 1881
Griswold, H. S	Chatfield	Fillmore	Feb. 22, 1881
Goward I	Freeborn	Freeborn	Feb. 28, 1881
Gould, W. K	Moorhead	Clay	March 1, 1881
Gilbert, G. K	Glencoe	McLeod	March 8, 1881
Goodrich, F. N	Houston	Houston	March 10, 1881
Goodwin, Geo. F	Grand Meadow	Mower	Feb. 28, 1881
Gunn, Thomas S	Montrose	Wright	March 28, 1881
Gerber, John	Perham	Otter Tail	March 21, 1881
Greene, Wm	Waterville	Le Sueur	April 2, 1881
Gorman, R. L	St. Paul	Ramsey	April 2, 1881
Gale, Wm	Winona	Winona	April 15, 1881
Granger, James N	St. Paul	Ramsey	April 18, 1881
Giltinan, John A	St. Paul	Ramsey	May 2, 1881
Gould, O. B	Winona	Winona	May 30, 1881
Gage, J. R	Stillwater	Washington	June 6, 1881
Goodwin, B. F	Winnebago City	Faribault	June 12, 1881
Gibson, Myron B	Winona	Winona	June 14, 1881
Goebel, Henry	Glencoe	McLeod	May 12, 1881
Gotshall, C. J	Minneapolis	Hennepin	June 10, 1881
Gale, Charles A	Mankato	Blue Earth	June 28, 1881
Greenman, J. M	Austin	Mower	July 5, 1881
Gensmer, M. F	Lewiston	Winona	July 14, 1881
Gaskill, L. M	Dexter	Mower	July 16, 1881
Gardner, C. W	Blooming Prairie	Steele	July 23, 1881

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Gray, William A	Farmington	Dakota	Aug. 26, 1881
Graves, F. A	Glencoe	McLeod	Aug. 26, "
Gleason, S. W	Mankato	Blue Earth	Sept. 1, "
Gilbert, L W	Glencoe	McLeod	Sept. 8, "
Grant, T. M	Ortonville	Big Stone	Sept. 26, "
Griffin, D. S	Morris	Stevens	Sept. 28, "
Gillrup, V	Glenville	Freeborn	Oct. 10, "
Greely, A M	Minneapolis	Hennepin	Nov. 8, "
Gardner, C. P	New Auburn	Sibley	Oct. 11, "
Gulbrandson, G	Albert Lea	Freeborn	Dec. 3, "
Goulet, F. X	Gravelville	Morrison	Dec. 1, "
Graham, S W	Blue Earth City	Faribault	Dec. 20, "
Gulzwille, Jr., I	Delano	Wright	Dec. 29, "
Grimmer, A. J	New Ulm	Brown	Jan. 2, 1882
Gooding, F. E	Rochester	Olmsted	Jan. 2, "
Grethen, Anton	Minneapolis	Hennepin	Jan. 19, "
Gilbert, Wm H	Glenville	Freeborn	Jan. 23, "
Goforth, Walter C	St. Paul	Ramsey	Feb. 7, "
Gorman, F. W	Buffalo	Wright	Feb. 14, "
Graves, Warren A	Montevideo	Chippewa	Feb. 28, "
Greene, J. E	Wells	Faribault	March 1, "
Groves, A. H	Winona	Winona	March 4, "
Greene, J. P	Albert Lea	Freeborn	March 6, "
Greer, Allen, J		Wabasha	March 7, "
Goodrich, D. F	Blue Earth City	Faribault	March 8, "
Goodnow, Charles C	Pipe Stone	Pipe Stone	March 17, "
Guilford, J	Minneapolis	Hennepin	March 18, "
Gabrielson, G	Newbury	Fillmore	March 23, "
Gallagher, Isaac	Sleepy Eye	Brown	March 23, "
Garrison, Oscar E	Brainerd	Crow Wing	April 6, "
Gove, R. H	Rochester	Olmsted	April 10, "
Grupy, F. H	Baltimore	Maryland	April 8, "
Gale, S. C	Minneapolis	Hennepin	March 2, "
Grimdsten, O. G	Worthington	Nobles	April 3, "
Gove, Arthur L	Rochester	Olmsted	April 14, "
Giddings, James H	Minneapolis	Hennepin	March 23, "
Granger, James N	St. Paul	Ramsey	April 18, "
Garrett, N. C	Fountain	Fillmore	May 2, "
Gilson, Rufus K	Minneapolis	Hennepin	May 19, "
Gates, W. A	Sauk Center	Stearns	May 20, "
Geist, Frank J	Minneapolis	Hennepin	May 23, "
Gale, Harlow A	Minneapolis	Hennepin	May 26, "
Gipson, H. S	Faribault	Rice	June 1, "
Gorman, E. S	St. Paul	Ramsey	March 4, "
Graves, J. T	Cannon Falls	Goodhue	May 1, "
Goebel, Henry	Glencoe	McLeod	May 12, "
George, Edward	St. Paul	Ramsey	June 1, "
Gates, H. B	Litchfield	Meeker	June 23, "
Geoghegan, Frank	Perham	Otter Tail	June 27, "
Griffin, James W	Minneapolis	Hennepin	June 28, "
Grant, W. H	St. Paul	Ramsey	July 5, "
Gaston, Wm. G	St. Paul	Ramsey	July 6, "
Gribble, Edwin	St. Paul	Ramsey	July 6, "
Griswold, Frank C.	Minneapolis	Hennepin	July 14, "
Giltman, J. A	Morris	Stevens	July 21, "
Goebel, Carl		Clay	July 27, "
Gowran, E. A		Clay	Aug. 1, "
Gravin, J. S	Minneapolis	Hennepin	July 24, "

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Gray, Almon J	Lake City	Wabasha	August 5, 1880
Gruss, H. C	Currie	Murray	Aug. 10, "
Gorgas, A. B	Crookston	Polk	Oct. 6, "
Griffith, Clarence D	Sleepy Eye	Brown	Oct. 9, "
Graves, W H	Minneapolis	Hennepin	Oct. 9, "
Gregory, C. P	Stillwater	Washington	Oct. 12, "
Gill, C. E	Glenwood	Pope	Nov. 6, "
Goodnow, Henry P	St. Paul	Ramsey	Nov. 8, "
Gooding, F. A	Rochester	Olmsted	Nov. 10, "
Gibson, M. B	Pelican Rapids	Otter Tail	Nov. 13, "
Gore, V. M	Minneapolis	Hennepin	Nov. 14, "
Grindeland, A	Warren	Marshall	Nov. 24, "
Hough, John	Mountain Lake	Cottonwood	Dec. 23, 1880
Hasler, S. S	Red Wing	Goodhue	Dec. 2, "
Haines, Charles R	Duluth	St. Louis	Dec. 12, "
Hensel, Charles	St. Peter	Nicollet	Jan. 21, 1881
Howe, Wm. M	Austin	Mower	Jan. 27, "
Hael, George W	Minneapolis	Hennepin	Jan. 8, "
Hagar, Frank N	New Prague	Scott	Jan. 1, "
Hyatt, H. S	Minneapolis	Hennepin	Jan. 8, "
Hall, M. O	Granite Falls	Yellow Medicine	March 15, "
Harris, W H	Caledonia	Houston	Feb. 18, "
Holmes, W. J	Fergus Falls	Otter Tail	Sept. 14, 1880
Haas, P. C	St. Paul	Ramsey	Dec. 20, "
Hadley, E. D	Lu Verne	Rock	Jan. 1, 1881
Higgins, H. R	Minneapolis	Hennepin	Feb. 8, "
House, John	Morris	Stevens	Feb. 9, "
Hill, J. C	Montevideo	Chippewa	Feb. 16, "
Hamlin, H. A	Fergus Falls	Otter Tail	Feb. 17, "
Hainlin, Ernest	Watertown	Carver	March 17, "
Hawkins, L. H	Shakopee	Scott	March 24, "
Hofeld, George	Alma City	Waseca	March 24, "
Hamilton, G. H	Minneapolis	Hennepin	March 24, "
Hill, H. W	St. Charles	Winona	March 25, "
Hagerty, Frank H	St. Paul	Ramsey	March 7, "
Hawley, N. F	Minneapolis	Hennepin	April 11, "
Hawkins, M. P	Minneapolis	Hennepin	April 18, "
Hamilton, C. E	Croookston	Polk	March 14, "
Hamm, Wm	St. Paul	Ramsey	Jan. 20, "
Hale, Wm. E	Minneapolis	Hennepin	March 31, "
Holmes, James F	Detroit	Becker	April 12, "
Hoard, E H	Red Wing	Goodhue	April 14, "
Hunt, Frank E	Red Lake Falls	Polk	April 14, "
Honde, Leon	Little Falls	Morrison	March 29, "
Harkin, Alexander	West Newton	Nicollet	April 10, "
Harris, Ariel C	Minneapolis	Hennepin	April 1, "
Home, Cullen B	St. Paul	Ramsey	April 13, "
Hotchkiss, E. A	Winnebago City	Faribault	April 11, "
Hewitt, Walter	St. Paul	Ramsey	April 19, "
Hillman, George N	St. Paul	Ramsey	April 26, "
Hall, Will J	Minneapolis	Hennepin	April 28, "
Habighorst, E. H	St. Paul	Ramsey	April 28, "
Howard, B	Moorhead	Clay	May 1, "
Hunt, Hiram A	Northfield	Rice	May 1, "
Harris, John L	Winona	Winona	May 5, "
Hall, O. M	Red Wing	Goodhue	May 5, "
Hodgson, T. C	Herman	Grant	May 6, "

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Howe, George G.	Clarissa	Todd	May 5, 1881
Hays, Calhoun	Two Rivers	Morrison	May 14, 1881
Handy, F. G.	Willmar	Kandiyohi	May 16, 1881
Hendrickson, C. K.	Minneapolis	Hennepin	May 17, 1881
Hamilton, George A.	St. Paul	Ramsey	May 31, 1881
Healey, George W.	North Prarie	Morrison	June 1, 1881
Hohn, W. J.	Lake City	Wabasha	June 4, 1881
Hale, E. B.	Renville Station	Renville	June 13, 1881
Hubbard, F. V.	Springfield	Brown	June 13, 1881
Hollister, Edward	Warsaw	Rice	June 18, 1881
Heins, B. F.	Renville	Renville	July 1, 1881
Hawkins, O. P.	Ashby	Grant	July 8, 1881
Horner, E. A.	Houston	Houston	July 12, 1881
Houpt, C. C.	Willmar	Kandiyohi	July 12, 1881
Hooker, Frederick	Minneapolis	Hennepin	July 18, 881
Hayes, O. S.	Hastings	Dakota	July 20, 1881
Hyde, Robert C	Ortonville	Big Stone	Aug. 10, 1881
Hansen, Hubert	St. Cloud	Stearns	Aug. 12, 1881
Hush, Alfred B.	Minneapolis	Hennepin	Aug. 16, 1881
Herbst, H. H.	St. Paul	Ramsey	Aug. 30, 1881
Honeywell, P. A.	High Forest	Olmsted	Aug. 30, 1881
Hubbard, L. P.	Minneapolis	Hennepin	Sept. 7, 1881
Houston, J. H.	Brownton	McLeod	Sept. 20, 1881
Hooper, Isaac	Grove City	Meeker	Oct. 5, 1881
Hooper, E. H. C.	Brown's Valley	Traverse	Oct. 7, 1881
Hurlburt, R F.	Minneapolis	Hennepin	Oct. 10, 1881
Holman, A. R.	Spring Valley	Fillmore	Oct. 16, 1881
Hickman, A. C.	Owatonna	Steele	Oct. 17, 1881
Hanson, S.	Renville	Renville	Oct. 25, 1881
Howe, J. P.	Granger	Fillmore	Nov. 14, 1881
Hosmer, G. H.	Farmington	Dakota	Nov. 12, 1881
Hemiup, N. H.	Minneapolis	Hennepin	Nov. 15, 1881
Hill, Samuel	Minneapolis	Hennepin	Dec. 1, 1881
Hendrickson, E. A.	St. Paul	Ramsey	April 7, 1881
Hoyt, Fred W.	Red Wing	Goodhue	May 21, 1881
Hamar, M. C.	Minneapolis	Hennepin	Nov. 23, 1881
Hay, A. S.	St. Paul	Ramsey	Nov. 26, 1881
Howe, H. H.	St. Paul	Ramsey	Nov. 30, 1881
Hibner, George E.	Spring Valley	Fillmore	Dec. 7, 1881
Hubbard, C. A.	Lake City	Wabasha	Dec. 7, 1881
Higgins, J. L.	Fairmont	Martin	Dec. 11, 1881
Hawley, Thomas C.	Lake Park	Becker	Dec. 13, 1881
Hedenberg, R. R.	St. Vincent	Kittson	Dec. 21, 1881
Hewson, Stephen	Oxford	Isanti	Dec. 27, 1881
Hastings, A. W.	Minneapolis	Hennepin	Dec. 31, 1881
Hart, I. L.	Pipe Stone City	Pipe Stone	Jan. 1, 1882
Huntington, H. B.	Minneapolis	Hennepin	Jan. 4, 1882
Holland, G. W.	Brainerd	Crow Wing	Jan. 5, 1882
Hicks, Henry G.	Minneapolis	Hennepin	Jan. 5, 1882
Hayes, A H.	Le Roy	Mower	Jan. 6, 1882
Hammond, T. H.	Montgomery	Le Sueur	Jan. 7, 1882
Hendryx, James J.	Sauk Centre	Stearns	Jan. 7, 1882
Hutt, B. J.	St. Paul	Ramsey	Jan. 7, 1882
Hanson, Jacob M.	Watson	Chippewa	Jan. 10, 1882
House, David	Hokah	Houston	Feb. 2, 1882
Hayden, Charles	Champlin	Hennepin	Jan. 7, 1882
Hill, E.	St. Charles	Winona	Jan. 12, 1882

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Hanson, O. C	Morris	Stevens	Jan. 16, 1882
Hadley, W. E	Owatonna	Steele	Jan. 18, 1882
Harding, Price B	Minneapolis	Hennepin	Jan. 19, 1882
Holt, Andrew	Minneapolis	Hennepin	Jan. 24, 1882
Hatch, Lewis E	Blooming Prairie	Steele	Jan. 25, 1882
Hathaway, R. D	Pleasant Grove	Olmsted	Jan. 28, 1882
Hadley, C. W	Owatonna	Steele	Jan. 31, 1882
Hermsmeyer, H. B	Norwood	Carver	Feb. 1, 1882
Hollingshead, E. R	St. Paul	Ramsey	Feb. 4, 1882
Howard, Wm. W	St. Paul	Ramsey	Feb. 7, 1882
Hodgins, Abner	Winona	Winona	Feb. 10, 1882
Haywood, Geo	St. Paul	Ramsey	Feb. 15, 1882
Holding, E. A	Murdock	Swift	Feb. 17, 1882
Hodgson, Wm	Hastings	Dakota	Feb. 21, 1882
Hjortsberg, Victor	St. Paul	Ramsey	Feb. 26, 1882
Hodgman, B. F	Red Wing	Goodhue	Feb. 26, 1882
Hurlbut, Walter	Rochester	Olmsted	March 1, 1882
Holbrook, F. W	Minneapolis	Hennepin	March 1, 1882
Haynes, S. H	Red Wing	Goodhue	March 3, 1882
Howard, Robertson	St. Paul	Ramsey	March 10, 1882
Hancock, John T	Chatfield	Fillmore	March 11, 1882
Hechtman, John	Osseo	Hennepin	March 12, 1882
Harper, George A	Minneapolis	Hennepin	March 17, 1882
Hawley, C. H	Dover Center	Olmsted	March 17, 1882
Hibbs, D. R. P	Albert Lea	Freeborn	March 22, 1882
Hagler, Fletcher	Pine Island	Goodhue	April 1, 1882
Holmes, O. M	Detroit	Becker	April 20, 1882
Hilyer, Andrew F	Minneapolis	Hennepin	April 24, 1882
Hilden, Peter J	Montevideo	Chippewa	April 18, 1882
Hurlbut, W. P	Lu Verne	Rock	April 21, 1882
Harvey, F. C	Minneapolis	Hennepin	April 25, 1882
Herring, H. P	Minneapolis	Hennepin	April 29, 1882
Halgren, S. A	Carmorant	Becker	May 1, 1882
Hill, John W	Janesville	Waseca	May 15, 1882
Hael, Geo. W	Minneapolis	Hennepin	Jan. 9, 1882
Hall, O. M	Red Wing	Goodhue	May 5, 1882
Hamlin, H. O	Minneapolis	Hennepin	May 1, 1882
Hall, George W	Austin	Mower	May 3, 1882
Hamel, Jos. O	Lenz	Hennepin	May 6, 1882
Hessian, Thos	Le Sueur	Le Sueur	May 8, 1882
Hatlestad, D. E	Crookston	Polk	May 26, 1882
Hayden, Herbert L	Lac qui Parle	Lac qui Parle	May 3, 1882
Hogenson, P	Rochester	Olmsted	May 24, 1882
Hall, A. J	Stewart	McLeod	June 1, 1882
Hopkins, E. F	Mazeppa	Wabasha	June 1, 1882
Harkens, C. E	Long Prairie	Todd	June 5, 1882
Hartshorn, B. F	Motley	Morrison	June 19, 1882
Harrison, Hugh	Minneapolis	Hennepin	June 19, 1882
Harris, J. D	Stillwater	Washington	June 20, 1882
Huntington, E. C	Windom	Cottonwood	June 29, 1882
Hatch, E. A. C	St. Paul	Ramsey	July 1, 1882
Heins, P. W	Olivia	Renville	June 29, 1882
Hinds Jr., Henry	Shakopee	Scott	July 8, 1882
Harrington, Lewis	Hutchinson	McLeod	July 8, 1882
Hughes, Thomas	Mankato	Blue Earth	July 12, 1882
Horton, H. H		Ramsey	June 28, 1882
Hall, A. H	Minneapolis	Hennepin	Aug. 11, 1882

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Hale, Wm. D	Minneapolis	Hennepin	Sept. 2, 1882
Hall, T. O	Granite Falls	Yellow Medicine	Sept. 8, 1882
Holmes, W. J	Fergus Falls	Otter Tail	Sept. 13, 1882
Howard, Jarvis	Manter	Cass	Sept. 14, 1882
Hagen, George	Minneapolis	Hennepin	Sept. 15, 1882
Howes, G. W	Hastings	Dakota	Sept. 21, 1882
Hase, Washington	Kasson	Dodge	Sept. 27, 1882
Hagberg, C. A	New Ulm	Brown	Sept. 21, 1882
Hemenway, E. A	St. Paul	Ramsey	Sept. 23, 1882
Holmes, James F	Red Lake Falls	Polk	Oct. 16, 1882
Hall, John H	Mankato	Blue Earth	Oct. 21, 1882
Hagen, George	Red Lake Falls	Polk	Oct. 21, 1882
Hogan, Michael	Sauk Centre	Stearns	Nov. 1, 1882
Hudson, S. H	Benson	Swift	Oct. 14, 1882
Hammond, C. D	Minneapolis	Hennepin	Nov. 11, 1882
Haugan, A. C	Minneapolis	Hennepin	Nov. 21, 1882
Hanson, J. A	Appleton	Swift	Nov. 22, 1882
Hilliker, A. M	Minneapolis	Hennepin	Nov. 23, 1882
Horn, Manford	Appleton	Swift	Nov. 23, 1882
Holcomb, E. R	St. Paul	Ramsey	Nov. 15, 1882
Ives, John N	Brownton	Polk	Feb. 27, 1881
Jngersoll, A. D	Blooming Prairie	Steele	Feb. 14, 1881
Ingleby, John	Postdam	Olmsted	Jan. 21, 1881
Iverson, Urjans	West Lake	Olmsted	May 28, 1881
Innes, Robert S	Minneapolis	Hennepin	June 14, 1881
Irwin, A. L	Wadena	Wadena	Oct. 7, 1881
Ingersoll. F. G	St. Paul	Ramsey	Dec. 6, 1881
Ingalls, Walter N	St. Paul	Ramsey	Dec. 27, 1881
Ireland, Chas. F	Appleton	Swift	Feb. 2, 1882
Irwin, F. C	Belle Plaine	Scott	March 2, 1882
Ives, Frank	Crookston	Polk	April 25, 1882
Isaacson, A. E	Hector	Renville	June 21, 1882
Irwin, Robert A	Belle Plaine	Scott	Oct. 7, 1882
Ives, G. S	St. Peter	Nicollet	Nov. 27, 1882
Jorgenson, O. B	Willmar	Kandiyohi	Dec. 4, 1880
Johnson, Peter	Dassel	Meeker	Dec. 4, 1880
Jacobus, Jr., E. L	Albert Lea	Freeborn	Dec. 6, 1880
Jones, Jr., E. S	Minneapolis	Hennepin	Dec. 18, 1880
Jackson, C. B	Morristown	Rice	Feb. 1, 1881
Jacobson, J. F	Lac qui Parle	Lac qui Parle	Nov. 22, 1881
Johnson, R. W	St. Paul	Ramsey	Feb. 7, 1881
Jascelyne, Charles	Lanesboro	Fillmore	Feb. 15, 1881
Johnston, F	St. Paul	Ramsey	Feb. 16, 1881
Johns, D. B	Brownton	McLeod	Feb. 20, 1881
Johnson, R. B	Blue Earth City	Faribault	March 7, 1881
Jones, Charles C	Minneapolis	Hennepin	April 5, 1881
Jones, Harry	Albert Lea	Freeborn	March 16, 1881
Judson, Roswell	Farmington	Dakota	March 28, 1881
Judson, W. L	Mankato	Blue Earth	April 1, 1881
Jack, C. B	Stillwater	Washington	April 7, 1881
Jassoy, Theodore	Stillwater	Washington	April 8, 1881
Jones, C. L	Owatonna	Steele	April 11, 1881
Jewett, Wm. P	St. Paul	Ramsey	April 19, 1881
Jorkwitz, C. R	Lanesboro	Fillmore	Feb. 15, 1881
Jewett, E. B	Marshall	Lyon	May 16, 1881
Jewett, R. H. L	Faribault	Rice	April 18, 1881
Jacobson, Ole	Benson	Swift	April 23, 1881

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Jones, Wm. B.	Excelsior	Hennepin	June 1, 1881
Jenness, B. F.	Wilmor	Kandiyohi	June 17, "
Jewell, Wm	Lake City	Wabasha	June 25, "
Johanneson, N	Leedstone	Stearns	July 8, "
Johnston, F	Fort Snelling	Hennepin	Aug. 3, "
Jones, W. C	Madelia	Watonwan	July 21, "
Jacobs, Ira	Aastad	Otter Tail	Aug. 11, "
Jeffers, Michael	Fergus Falls	Otter Tail	Aug. 29, "
Janzen, John	Mountain Lake	Cottonwood	Sept. 16, "
Jackson, A. B	Minneapolis	Hennepin	Oct. 24, "
Jones, D. P	Minneapolis	Hennepin	Oct. 25, "
Johnston, C. M	Minneapolis	Hennepin	Nov. 10, "
Johnson, E. M	Minneapolis	Hennepin	Oct. 16, "
Johnson, M.	Atwater	Kandiyohi	Nov. 22, "
Jordan, A. N	Minneapolis	Hennepin	Nov. 24, "
Johnson, Jr., D. B	Austin	Mower	Dec. 1, "
Janes, F. L	Madelia	Watonwan	Dec. 17, "
Johnson, R. H	Owatonna	Steele	Dec. 26, "
Jones, Gamalid L.	Lake Park	Becker	Dec. 29, "
Jenks, J. R	Saint Paul	Ramsey	Dec. 21, "
Jacobson, John P	Saint Paul	Ramsey	Jan. 9, 1882
Johnson, John T	Spring Valley	Fillmore	Nov. 1, 1881
Johnson, D. C	Lakeville	Dakota	Jan. 13, 1882
Jones, Jos. R	Adrian	Nobles	Jan. 25, "
Jones, J. D	Long Prairie	Todd	Feb. 12, "
Jones, J. R	Chatfield	Fillmore	Jan. 25, "
Johnson, C. C	Kasson	Dodge	Feb. 14, "
Junken, S. W	Waverly Mills	Wright	Feb. 15, "
Joss, Frederick	Red Wing	Goodhue	Feb. 28, "
James, Henry C	Saint Paul	Ramsey	Jan. 17, "
Johnson, R. R	Benson	Swift	March 3, "
Jennings, I. U	Crookston	Polk	March 3, "
Johnson, H. E	Owatonna	Steele	March 30, "
Johnson, Ole J.	....	Hennepin	April 1, "
Jones, Josiah H	Winona	Winona	April 15, "
Jewett, Eugene A	Fergus Falls	Otter Tail	April 18, "
Jerome, Charles T	Minneapolis	Hennepin	April 14, "
Jacobsen, Wm	Lu Verne	Rock	May 3, "
Johnson, Lorentz	Brandon	Douglas	May 17, "
Jossup, Gilbert H	Tracy	Lyon	June 1, "
Jones, Edward A	Rochester	Olmsted	Nov. 30, 1881
Jenkins, Horatio	Alexandria	Douglas	June 1, 1882
Jones, E. L	Minneapolis	Hennepin	March 22, "
Johnson, S. S.	Windom	Cottonwood	June 30, "
Johnson, Albert	Minneapolis	Hennepin	July 11, "
Jamison, Robert	Minneapolis	Hennepin	July 29, "
Judson, H. S	Morris	Stevens	Sept. 22, "
Jones, Lyman R	Ortonville	Big Stone	Oct. 4, "
Johnson, Sam. J	Minneapolis	Hennepin	Oct. 12, "
Johnson, S. H	Appelton	Swift	Oct. 19, "
Kaeder, A. Ed	Waconia	Carver	Dec. 2, 1880
Kuhlman, George	New Ulm	Brown	Dec. 23, "
Kinyon, C. J	Owatonna	Steele	Jan. 1, 1881
Knox, T. J	Jackson	Jackson	Jan. 8, "
Knight, A. M	Glencoe	McLeod	Jan. 15, "
Kelley, H. K	Northfield	Rice	Feb. 1, "
Knudson, Henry	Lakefield	Jackson	Jan. 3, "
Keenan, Joseph	Austin	Mower	Jan. 26, "

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
King, O. L.	Carimona	Fillmore	Jan. 22, 1881
Kling, J	St. Paul	Ramsey	Feb. 25, "
Kennedy, Joel B	Nicollet	Nicollet	Feb. 21, "
Knuetson, K	Osakis	Douglas	Feb. 23, "
Kingsley, N	Chatfield	Fillmore	March 1, "
Keith, A. M	Minneapolis	Hennepin	March 25, "
Keyes, A. L	Faribault	Rice	March 28, "
Kron, Ole	Evansville	Douglas	April 1, "
Kerr, C. D	St. Paul	Ramsey	Feb. 20, "
Kelliher, J	St. Paul	Ramsey	March 11, "
Kelsey, J. H	Fair Point	Goodhue	April 13, "
Kenyon, M. D	St. Paul	Ramsey	April 26, "
Kelly, W. H	Owatonna	Steele	June 15, "
Kirsch, P	Middle River	Marshall	May 23, "
Keene, J. F	Minneapolis	Hennepin	May 26, "
Koons, Wm. H	Northfield	Rice	June 6, "
King, C. E	Dexter	Mower	June 20, "
Knox, Andrew	Austin	Mower	June 25, "
Keyes, A. D	Faribault	Rice	June 1, "
Kiefer, R. M	St. Paul	Ramsey	July 7, "
Kellar, Curtis B	Albert Lea	Freeborn	July 24, "
Kells, L. M	Sauk Centre	Stearns	July 15, "
Kempe, Charles	Red Wing	Goodhue	July 12, "
Kipp, Orrin	Henderson	Sibley	Aug. 8, "
Kimball, Edward J	Minneapolis	Hennepin	Aug. 13, "
Kirch, F. A	St. Paul	Ramsey	Aug. 18, "
King, Cyrus M	Howard Lake	Wright	Aug. 24, "
Kitchel, Stanley R.	Minneapolis	Hennepin	Aug. 31, "
Kinney, A. G	Fergus Falls	Otter Tail	Sept. 23, "
Keeley, M. H	Faribault	Rice	Jan. 10, "
Kipp, S	Henderson	Sibley	Oct. 1, "
Kjosness, G. P	Appleton	Swift	Oct. 14, "
Kennedig, J. P	Fergus Falls	Otter Tail	Oct. 24, "
Kenaston, F. E	Minneapolis	Hennepin	Nov. 21, "
Knowlton, B. K	Sauk Rapids	Benton	Nov. 29, "
Kilborn, L. G	Wykoff	Fillmore	Jan. 20 1882
Kinney, Wesley	Mazeppa	Wabasha	Dec. 22, 1881
Knox, Reuben	Minneapolis	Hennepin	Dec. 27, "
Knappen, T F	Montevideo	Chippewa	Dec. 30, "
Krebs, Wm. S	Albert Lea	Freeborn	Jan. 1, 1882
Kelley, Wm. L	St. Paul	Ramsey	Jan. 7, "
Koch, E. G	New Ulm	Brown	Jan. 28, "
Kells, L	Sauk Centre	Stearns	Jan. 28, "
Kimberley, Geo. W	Duluth	St. Louis	Jan. 30, "
Keith, Albert A	Minneapolis	Hennepin	March 9, "
Kavlie, H. H	Appleton	Swift	March 13, "
Kelsey, M. C	Sauk Centre	Stearns	March 14, "
Kivley, Gunder	Appleton	Swift	March 21, "
Kimball, E	Forest City	Meeker	March 23, "
Kniss, G. W	Lu Verne	Rock	April 19, "
Kellogg, W. L	Spring Valley	Fillmore	April 12, "
Knudson, Ole A	Wadena	Wadena	April 17, "
Kortsch, G. A	Alexandria	Douglas	March 20, "
Knoblauch, Anton	Carver	Carver	May 6, "
Karlander, N. M	Moorhead	Clay	May 11, "
Kibbey, James S	Mountain Lake	Cottonwood	May 12, "
Kelley, A. F	Minneapolis	Hennepin	June 1, "

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Kleven, Ole O	Tyler	Lincoln	June 17, 1882
Kellett, Thos. P	Zumbrota	Goodhue	July 7, "
Keene, Geo. A	Brainerd	Crow Wing	July 30, "
Koonze, Charles	Easton	Faribault	Sept. 1, "
Kinder, Wm. R	Waseca	Waseca	Sept. 1, "
Knauft, Ferdinand	St. Paul	Ramsey	Sept. 20, "
Koon, Mart. B	Minneapolis	Hennepin	Sept. 30, "
Ketcham, George	Herman	Grant	Aug. 23, "
Kellogg, F. B	Rochester	Olmsted	Oct. 1, "
Knowlton, M. L	Minneapolis	Hennepin	Oct. 2, "
Kneffner, Otto	St. Paul	Ramsey	Oct. 13, "
Kneeland, T	Minneapolis	Hennepin	Oct. 16, "
King, Henry J	Leech Lake	Cass	Oct. 18, "
Katschevar, M	Millerville	Douglas	Nov. 4, "
Kalmar, Arnold	St. Paul	Ramsey	Nov. 11, "
Konzen, P. H	Hallock	Kittson	Nov. 22, "
Kelley, Louis E	Minneapolis	Hennepin	Nov. 1, "
Kennedy, A. W	Minneapolis	Hennepin	Nov. 28, "
Leland, C. C	Minneapolis	Hennepin	Dec. 13, 1880
Lien, Ole L	Willmar	Kandiyohi	Jan. 25, 1881
Lee, J. W	Rush City	Chisago	Jan. 22, "
Lachance, J. D	Little Falls	Morrison	Feb. 1, "
Lanyguth, C. W	St. Peter	Nicollet	Feb. 7, "
Landberg, John	Morris	Stevens	Feb. 9, "
Laird, W. H	Winona	Winona	Feb. 21, "
Levering, T. M	Minneapolis	Hennepin	March 10, "
Luke, D. W	Minneapolis	Hennepin	March 16, "
Ladd, H. E	Minneapolis	Hennepin	March 19, "
Lee, Orrin	Medford	Steele	April 5, "
Lattin, D. L	Herman	Grant	April 10, "
Longbrake, L. L	Minneapolis	Hennepin	May 2, "
Larson, John	Tracy	Lyon	May 17, "
Lynn, W. H	Granite Falls	Yellow Medicine	April 20, "
Leonard, C. B	Minneapolis	Hennepin	April 22, "
Lane, G. A	Ada	Polk	April 30, "
Leavett, S. W	Litchfield	Meeker	May 10, "
La Du, John T	Rochester	Olmsted	May 5, "
Larson, Louis	Marshall	Lyon	May 14, "
Lammers, L. F	Heron Lake	Jackson	April 21, "
Lowry, Joseph	Kasson	Dodge	April 21, "
Landru, Newton L	Canby	Yellow Medicine	May 23, "
Loring, A. E	Taylors Falls	Chisago	April 23, "
Lambert, Frank	Austin	Mower	April 25, "
Lamprey, U. L	St. Paul	Ramsey	June 9, "
Lindley, Clarkson	Minneapolis	Hennepin	June 18, "
Ladd, J. W	Bird Island	Renville	Feb. 21, "
Lum, Leon O	Brainerd	Crow Wing	July 2, "
Lewis, R. J	St. Paul	Ramsey	July 11, "
Laing, R. W	Minneapolis	Hennepin	July 15, "
Lincoln, E. B	Glencoe	McLeod	July 20, "
Laughlin, A. H	New Richland	Waseca	Aug. 10, "
Laner, Wm	Lamberton	Redwood	Aug. 29, "
Lewis, R. P.	St. Paul	Ramsey	Sept. 17, "
Lowry, C. B	Alexandria	Douglas	Sept. 21, "
Letford, J. S	Lamberton	Redwood	Oct. 6, "
Lord, Herbert	Winona	Winona	Oct. 8, "
Lamberton, H. W	Winona	Winona	June 23, "

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Lawrence, J. W	Minneapolis	Hennepin	Oct. 10. 1881
Levi, A. L	Minneapolis	Hennepin	Oct. 15, "
Lewis, C. L	Fergus Falls	Otter Tail	Oct. 24, "
Leavitt, W. C	Minneapolis	Hennepin	Dec. 1, "
Lane, H. N	Glenville	Freeborn	Dec. 1, "
Lane, Gilbert A	Ada	Norman	Dec. 1, "
Lovely, John A	Albert Lea	Freeborn	Dec. 16, "
Lindley, Samuel H	Minneapolis	Hennepin	Dec. 30, "
Lecky, Thomas	Stillwater	Washington	Dec. 31, "
Lee, Wm. E	Long Prairie	Todd	Jan. 2, 1882
Lake, Fred. H	Fergus Falls	Otter Tail	Jan. 2, "
Latta, B. F	Dodge Centre	Dodge	Jan. 7, "
Larson, Jacob	New Ulm	Brown	Jan. 9, "
Lund, Anthon	Montevideo	Chippewa	Jan. 1, "
Lord, Lewis	Owatonna	Steele	Jan. 12, "
Lamberton, A. J	St. Peter	Nicollet	Jan. 12, "
Lockwood, Wm	Edgerton	Pipe Stone	Jan. 16, "
Latham, F. E	Howard Lake	Wright	Jan. 23, "
Lamb, Nathan F	Rochester	Olmsted	Jan. 23, "
Luce, A. J	Granite Falls	Chippewa	Feb. 1, "
Laufman, E. W	St. Paul	Ramsey	Feb. 1, "
Latham, A. B	Howard Lake	Wright	Feb. 3, "
Little, M. O	Glencoe	McLeod	Feb. 9, "
Lynch, John M	St. Paul	Ramsey	Feb. 21, "
Lyon, A. B	New Hartford	Winona	March 1, "
La Valley, J. L	Brekenridge	Wilkin	March 1, "
Lattin, D. L	Herman	Grant	March 5, "
Lowell, Charles L	Faribault	Rice	March 11, "
Loring, Albert C	Minneapolis	Hennepin	March 1, "
Letts, George L	Granite Falls	Yellow Medicine	April 4, "
Landquist, J. W	Willmar	Kandiyohi	April 6, "
Leo, John	Crookston	Polk	April 11, "
Lord, Samuel D	St. Paul	Ramsey	April 12, "
Layman, C. B	Minneapolis	Hennepin	April 17, "
Lewis, B. S	Waseca	Waseca	April 21, "
Leonard, Q	Mankato	Blue Earth	April 13, "
Lachance, Philip	Little Falls	Morrison	April 14, "
Lamb, Gaylord	Mankato	Blue Earth	April 25, "
Lewis, Joseph	St. Paul	Ramsey	May 1, "
Lewis, Marcus W	Minneapolis	Hennepin	May 1, "
Leonard, R. E	Morris	Stevens	May 1, "
La Cross, Frank	Pelican Lake	Otter Tail	May 4, "
Laughlin, J. W	New Richland	Waseca	May 8, "
Lynes, Wm. D	Minneapolis	Hennepin	May 8, "
Lincoln, W. C	Fergus Falls	Otter Tail	May 13, "
Landen, J. P	Stepnen Station	Marshall	May 25, "
Larson, Ole, L.	Lake Parke	Becker	June 1, "
Lanpher, Morris	St. Paul	Ramsey	June 7, "
Lauderdale, J W	Minneapolis	Hennepin	June 8, "
Leighton, L W	Dassel	Meeker	June 10, "
Longley, H. J	Moorhead	Clay	June 15, "
Larrabee, F. D	Detroit	Becker	June 17, "
Linton, C. R	Montevideo	Chippewa	June 19, "
Lane, Freeman P	Minneapolis	Hennepin	June 8, "
Limberg, Gustave A	....	Ramsey	July 10, "
Loomis, A. P	Osakis	Douglas	July 12, "
Lambert, E. F	St. Paul	Ramsey	July 14, "

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Lilley, T. J	Blue Earth City,	Faribault	July 20, 1882
Lewis, Albert R	Minneapolis	Hennepin	April 12, "
Ladd, Sumner	St. Peter	Nicollet	Jan. 23, "
La Due, A	Montorville	Dodge	July 22, "
Lawrence, C G	St. Paul	Ramsey	Aug. 7, "
Luce, E. E	Wadena	Wadena	Jan. 9, "
Livingstone, R. M	St. Paul	Ramsey	Aug. 20, "
Lee, Orris E	Stillwater	Washington	Sept. 16, "
Lightner, Wm. H	St. Paul	Ramsey	Sept. 22, "
Lord, Herbert	Fergus Falls	Otter Tail	Sept. 11, "
Lewis, H. P	Fulda	Murray	Sept. 3, "
Latimer, F. E	Minneapolis	Hennepin	Sept. 22, "
Lorentzen, H	Frontenac	Goodhue	Oct. 10, "
Lathrop, Fred. B	Minneapolis	Hennepin	Oct. 13, "
Lohmann, John W	Stillwater	Washington	Oct. 13, "
Lawrence, J. W	Minneapolis,	Hennepin	Oct. 10, "
Lord, Clinton D	Sauk Center	Stearns	Oct. 31, "
Libbey, H A	St. Helaire	Polk	Oct. 31, "
Lindner, Gustave	Litchfield	Meeker	Nov. 1, "
Laufman, C. H		Sibley	Nov. 6, "
Lane, E. F	St Paul	Ramsey	Nov. 14, "
Lauderdale, F. W	Minneapolis	Hennepin	Nov. 23, "
Lauderdale, W. H	Minneapolis	Hennepin	Nov. 23, "
Leavitt, C. H	Pine Island	Goodhue	Sept, 12, "
Marchall, Eugene	Caledonia	Houston	Dec. 24, 1880
Matile, G. E	Minneapolis	Hennepin	Dec. 21, "
Murray, Asker	Wadena	Wadena	Dec. 13, "
Moore, George O	Worthington	Nobles	Dec. 10, "
Moore, R. C	Morris	Stevens	Dec. 3, "
Mullen, John J	Faribault	Rice	Jan, 10, "
Morse, Wm. S	Faribault	Rice	Jan. 28, 1881
Mars, R. E.	Morris	Stevens	Jan. 21, "
Montague, R. J	Rochester	Olmsted	Jan. 18, "
Markell, D W	Dundas	Rice	Feb. 1, "
Morrison, S	St. Paul	Ramsey	Feb. 1, "
Manning, J	Lake City	Wabasha	Jan. 29, "
Mahoney, S	Minneapolis	Hennepin	Jan. 1, "
McArthur	Lu Verne	Rock	Feb. 2, "
Mentzer, H. C	Warren	Marshall	Feb. 3, "
McKusick, L H	Pine City	Pine	Feb. 5, "
Mecham, A. J	Red Wing	Goodhue	Feb. 5, "
Murdock, H. R	Stillwater	Washington	Feb. 9, "
McIntyre, H. M	Lansing	Mower	Feb. 23, "
Merritt, J. E	Minneapolis	Hennepin	Feb. 28, "
Miller, S N	Alexandria	Douglas	March 3, "
Miller, John	White Rock	Goodhue	March 3, "
Moore, Wm. S	St. Paul.	Ramsey	March 5, "
McDonald, D. B	Melrose	Stearns	March 5, "
Mainzer, Jacob	St. Paul	Ramsey	March 6, "
McLean, John	Crookston	Polk	March 10, "
Matthy, C. M	Bluffton	Otter Tail	March 13, "
McClun, J. C	Red Wing	Goodhue	March 15, "
Miller, M. T	Osakis	Douglas	March 17, "
Moser, John	Crookston	Polk	March 17, "
Mordoff, C. J	Spring Valley	Fillmore	March 20, "
Miller, Ernst	Winsted Lake	McLeod	March 23, "
McLaughlin, C. N	Owatonna	Steele	April 5, "

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Murray, Wm. P	St. Paul	Ramsey	April 8, 1881
Miller, Robert	Fergus Falls	Otter Tail	April 12, "
Murdock, J. N	Wabasha	Wabasha	April 14, "
Misner, H. C	Euclid	Polk	March 15, "
Miller, George F	Beaver Falls	Renville	April 15, "
Miner, N. H	Sauk Centre	Stearns	April 28, "
Marsh, Fayette	Stillwater	Washington	April 30, "
Mo, Hans	Sleepy Eye	Brown	May 1, "
McGrorty, Wm. B	St. Paul	Ramsey	May 5, "
Myers, John J	Winona	Winona	May 8, "
Maxfield, J. M	Le Roy	Mower	May 11, "
Morrill, F. L	Redwood Falls	Redwood	May 25, "
Miner, M. H	St. Paul	Ramsey	May 25, "
Main, Chas. W	Tracy	Lyon	May 27, "
Moore, G. R	Jackson	Jackson	June 1, "
Mearkle, E. F	Minneapolis	Hennepin	June 3, "
Maire, C. F	New Ulm	Brown	June 18, "
Manning, M. D	Willmar	Kandiyohi	June 20, "
McCormick, W. E	Benson	Swift	June 24, "
Morean, Oride	Red Lake	Polk	June 24, "
McIntyre, Wm. B	Minneapolis	Hennepin	April 12, "
Muster, Peter Moe	Fergus Falls	Otter Tail	June 30, "
Merrill, D. D	St. Paul	Ramsey	July 6, "
Mathews, I. O	Crookston	Polk	July 8, "
Mott, James	Benson	Swift	July 15, "
Merrick, A. H	St. Paul	Ramsey	July 15, "
Mann, Milton P	Worthington	Nobles	July 18, "
Munro, Weed	Minneapolis	Hennepin	July 20, "
Mathews, M. E	Marshall	Lyon	July 21, "
Merrill, G. W	Anoka	Anoka	July 23, "
Montague, R. J	Crookston	Polk	Aug. 1, "
Mobeck, Alex	Minneapolis	Hennepin	Aug. 5, "
Mendenhall, L	Duluth	St. Louis	Aug. 10, "
Merrill, E. A	Minneapolis	Hennepin	Aug. 18, "
Mones, S. W	Rochester	Olmstead	Aug. 30, "
Marvin, R. F	Duluth	St. Louis	Sept. 2, "
Martin, D	Dassel	Meeker	Sept. 13, "
Moyer, L. G	Montevideo	Chippewa	Sept. 14, "
Mitchell, C. S	St. Cloud	Stearns	Sept. 23, "
Matthews, L. A	Lake Benton	Lincoln	Sept. 23, "
McClelland, R. H	Jordan	Scott	Sept. 27, "
Magoffin, S. M	St. Paul	Ramsey	Sept. 30, "
Morey, C. A	Winona	Winona	Oct. 8, "
McDonald, M. J	Graceville	Big Stone	Oct. 12, "
Middagh, Wm	Rollag	Clay	Oct. 10, "
McCracken, P. M	Cherry Grove	Fillmore	Oct. 14, "
McDonald, I. I	Owatonna	Steele	Oct. 17, "
McCullough, John	Morris	Stevens	Nov. 5, "
Mullen, John J	St. Paul	Ramsey	Nov. 5, "
Matthews, M. L	Foster	Big Stone	Nov. 15, "
Moore, J. E	St. Paul	Ramsey	Nov. 18, "
Man, B. A	Lanesboro	Fillmore	July 14, "
Mullenmeister, T	Sleepy Eye	Brown	Nov. 22, "
Morse, E. H	St. Cloud	Stearns	Nov. 29, "
Marshall, Wm. R	St. Paul	Ramsey	Nov. 29, "
McMillan, P. D	Minneapolis	Hennepin	Dec. 2, "
Minton, F. W	Northfield	Rice	Dec. 5, "

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
McDougall, H. W.	Wabasha	Wabasha	Dec. 6, 1881
Miner, Julius E.	Minneapolis	Hennepin	Dec. 10, "
Marshall, J. D.	Atwater	Kandiyohi	Dec. 22, "
McAfee, James L.	St. Paul	Ramsey	Sept. 15, "
Miller, S. R.	Beaver Falls	Renville	Dec. 1, "
Manson, Mons.	Hector	Renville	Dec. 22, "
Mosness, O.	Moorhead	Clay	Dec. 20, "
Marvin, Richard	St. Paul	Ramsey	Dec. 29, "
Merrick, L. A.	Minneapolis	Hennepin	Dec. 31, "
McKnight, Joseph	Le Roy	Moore	Jan. 2, 1882
Magnus, Peter	Cambridge	Isanti	Jan. 2, "
Madison, J. M.	Osakis	Douglas	Jan. 5, "
Merwin, A. H.	Winnebago City	Faribault	Jan. 6, "
Mullen, John J.	Faribault	Rice	Jan. 7, "
Marrinan, M. K.	Shakopee	Scott	Jan. 7, "
Mead, C. A.	Lu Verne	Rock	Jan. 13, "
Morse, Elisha	Minneapolis	Hennepin	Jan. 14, "
Mendenhall, R. J.	Minneapolis	Hennepin	Jan. 14, "
McClelland, J. F.	Jordan	Scott	Jan. 20, "
Moore, James P.	St. Paul	Ramsey	Jan. 21, "
Madigan, M. M.	Lamberton	Redwood	Jan. 24, "
McRea. A. P.	Pillsbury P. O.	Todd	Jan. 25, "
May, Andrew P.	Balaton	Lyon	Feb. 1, "
McRhaill, Sam	Alta Vista	Lincoln	Feb. 1, "
Macartney, A. E.	Stillwater	Washington	Feb. 1, "
Meacham, A. J.	Red Wing	Goodhue	Feb. 2, "
Maurer, William	Henderson	Sibley	Feb. 4, "
McCabe, Charles	Sherburn	Martin	Feb. 6, "
McMahon, E. J	Faribault	Rice	Feb. 9, "
Meyer, Joseph L.	Perham	Otter Tail	Feb. 9. "
Mathews, Stephen T.	Winona	Winona	Feb. 19, "
Moore, E. E.	Moorhead	Clay	Feb. 23, "
Mason, J. W.	Fergus Falls	Otter Tail	March 1, "
McGrath, T. W.	Minneapolis	Hennepin	March 3, "
Muff, F. W.	Mankato	Blue Earth	March 10, "
McBride, John	Lake City	Wabasha	March 12, "
Mott, R. A.	Faribault	Rice	March 15, "
Merwin, A. H.	Pipestone	Pipestone	March 16, "
Murrel, J. R.	Wykoff	Fillmore	March 22, "
Morrison, H. G. O.	St. Paul	Hennepin	Jan. 12, "
Meighen, Thos. J.	Forestville	Fillmore	April 8, "
McHale, James	Shakopee	Scott	April 11, "
Myrick, Ira	Elysian	Le Sueur	April 13, "
Miller, C. D.	Minneapolis	Hennepin	April 13, "
McKittrick, J.	New Ulm	Brown	April 17, "
McKinney, J. N.	Owatonna	Steele	April 1, "
McGonru, P.		Waseca	March 8, "
Moore, C. A.	St. Paul	Ramsey	April 19, "
Mills, J. Dolson	St. Cloud	Stearns	April 24, "
Mackey, J. S.	Minneapolis	Hennepin	April 28, "
Montague, Frank	Crookston	Polk	May 1, "
Manship, C. H.	St Paul	Ramsey	May 1, "
Miller, John M.	Minneapolis	Hennepin	May 5, "
Matthews, O. G.	Argyle	Marshall	May 9, "
Menage, L. F.	Minneapolis	Hennepin	May 12, "
Maginnis, C.		Stevens	May 15, "
Metcalf, O. M.	St. Paul	Ramsey	May 15, "

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Muldoon, J. D	Minneapolis	Hennepin	May 16, 1882
Melhinn, B	Madelia	Watonwan	May 19, “
McManus, G. J	Crookston	Polk	May 20, “
Munroe, J. L	Minneapolis	Hennepin	May 25, “
McCarger, A. L	Litchfield	Meeker	May 26, “
Morin, Wm	Albert Lea	Freeborn	April 13, “
Miller, James E	Madelia	Watonwan	June 3, “
Mackay, P. S	Minneapolis	Hennepin	June 5, “
Markoe, R. J	St. Paul	Ramsey	June 5, “
McAdam, W. C	Albert Lea	Freeborn	June 7, “
Morton, A. C	Fergus Falls	Otter Tail	June 10, “
Mills, Ira B	Moorhead	Clay	June 12, “
McDermott, D. F	Clontorf	Swift	June 15, “
Mason, R. G	Verndale	Wadena	June 15, “
Matchan, Geo. L	Minneapolis	Hennepin	June 21, “
Mosbrugger, J	St. Paul	Ramsey	June 26, “
Miller, O. S	Champlin	Hennepin	July 13, “
Moses, R. A	Kasson	Dodge	June 30, “
McKenna, P	Shieldsville	Rice	July 3, “
Mullen, Arthur	Frazee City	Becker	July 5, “
Mentzer, Rufus	Warren	Marshall	July 7, “
Martin, J. M	Lake City	Wabasha	July 17, “
Markham, J D	Rush City	Chisago	July 18, “
Mearkle, E. F	Minneapolis	Hennepin	July 21, “
Mahew, T. W	Grand Marais	Cook	July 22, “
Mock, J. G	Helena	Scott	July 25, “
McArthur, A. J	Fergus Falls	Otter Tail	July 19, “
Moore, Elder D	St. Cloud	Stearns	Aug. 5, “
McClure, C. M	Stillwater	Washington	Aug. 5, “
Mactarland, R. R	Duluth	St. Louis	Aug. 7, “
Masterson, E. F	Crookston	Polk	Aug. 15, “
McGrann, Swen	Green Isle	Sibley	Aug. 19, “
Macky, J. S	St. Paul	Ramsey	Aug. 29, “
Moulton, George E	Minneapolis	Hennepin	Oct. 3, “
Marsh, Chas. A. J	Minneapolis	Hennepin	Oct. 4, “
McLarty, D. A	Granite Falls	Yellow Medicine	Oct. 6, “
Morris, Henry	St. Paul	Ramsey	Oct. 6, “
Middleton, C. R	Stillwater	Washington	Oct. 10, “
Meeker, Martin	Evansville	Douglas	Oct. 11, “
Meeker, Stillman	Evansville	Douglas	Oct. 16, “
Martin, R. S	Cedar Mills	Meeker	Oct. 26, “
Magnuson, C. A	Willmar	Kandiyohi	Oct. 1, “
McCord, E. B	Monticello	Wright	Sept. 11, “
McCormick, Findley	St. Paul	Ramsey	Sept. 13, “
Mathews, E. T	Marshall	Lyon	Sept. 9, “
Manwaring, Lewis L	Stillwater	Washington	Sept. 23, “
Mosher, H. K	St. Paul	Ramsey	Oct. 27, “
Miller, W. A	Minneapolis	Hennepin	Oct. 1, “
Mackenroth, Frank	Barnesville	Clay	Oct. 31, “
McClure, W. B	Minneapolis	Hennepin	Oct. 31, “
Mead, Warren H		Ramsey	Nov. 2, “
Morse, C. A	Sauk Center	Stearns	Nov. 11, “
McMullen, Robert	Minneapolis	Hennepin	Nov. 11, “
Moritz, Wm. F	St. Paul	Ramsey	Nov. 13, “
McLean, Chas. S	Wabasha	Wabasha	Nov. 14, “
Matthews, A. C	Lake Benton	Lincoln	Nov. 25, “
Nelson, L. G	Kasson	Dodge	Dec. 9, 1880

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Nash, A. H	Morris	Stevens	Dec. 18, 1880
Nowell, Henry M	Rochester	Olmsted	Dec. 3, "
Newell, J	Parker's Prairie	Otter Tail	Jan. 22, 1881
Neal, R. H	Lake City	Wabasha	Jan. 26, "
Nelson, F	St Paul	Ramsey	Jan. 26, "
Norman, P. L	Montevideo	Chippewa	Jan. 31, "
Northam, U	Collegeville	Stearns	Feb. 14, "
Newcomb, C. A	Fergus Falls	Otter Tail	Feb, 25, "
Newcomb, T. B	Alice	Kittson	Feb. 28, "
Niles, James	Hector	Renville	March 16, "
Nichols, M	Crookston	Polk	March 21, "
Nelson, N. E	Wild Rice	Polk	April 1, "
Newell, F. A	Waseca	Waseca	March 13, "
Norton, G. A	Montorville	Dodge	April 22, "
Nelson, L. S	Adrian	Nobles	May 28, "
Norrish, J. F	Appleton	Swift	June 25, "
Nordin, A. F	Willmar	Kandiyohi	June 27, "
Nichols, Luther	New Ulm	Brown	June 23, "
Nelson. J P	Warren	Marshall	July 20, "
Nind, J. G	Minneapolis.	Hennepin	Aug. 3, "
Northrop, F. W	St. Paul	Ramsey	Sept. 20, "
Norton, C. O	Canby	Yellow Medicine	Oct. 16, "
Noben, P. O,	Fergus Falls	Otter Tail.	Nov. 2, "
Negaard. Ole H	West Lake	Kandiyohi	Nov. 7, "
Noble, W. R	St. Paul	Ramsey	Dec. 1, "
Newhart, J	New Ulm	Brown	Dec. 19, "
Nichols, B	Minneapolis	Hennepin	Jan. 6, "
Nelson. Soren R	Owatonna	Steele	Jan. 25, "
Noe, John C	Mankato	Blue Earth	Feb. 1, "
Nelson, S. J	Kasson	Dodge	Feb. 14, "
Nettleton, P. B	Montevideo	Chippewa	Feb. 28, "
Nelson, P	Appleton	Swift	March 1, "
Norton, A. W	Northfield	Rice	March 17, "
Nelson. Knute	Alexandria	Douglas	March 20, "
Newald, L. J	Ortonville	Big Stone	April 6, "
Neff, J. E	Slayton	Murray	April 14, "
Newsalt, J	Owatonna	Steele	April 18, "
Norby, G. J	Lake Park	Becker	May 1, "
Nelson. Abner B	Warren	Marshall	June 16, "
ewel. Stanford	St. Paul	Ramsey	Aug. 8, "
Nevius. Geo. L	Wadena	Wabasha	Sept. 10, "
Nethaway, J. C	Stillwater	Washington	Oct. 5, "
Neiler, H. J	Minneapolis	Hennepin	Nov. 3. "
Niles, John H	Minneapolis	Hennepin	Nov. 14, "
Nicolet, Will H	Minneapolis	Hennepin	Nov. 24, "
O'Brien, John D	St. Paul	Ramsey	Dec. 10, 1880
O'Meara, James	Henderson	Sibley	Jan. 5, 1881
O'Brien, T. D	St. Paul	Ramsey	Jan. 21, "
O'Grady, John	Shakopee	Scott	Jan. 28, "
O'Farrall, I. F	Chatfield	Fillmore	Feb. 1, "
Olmsted. F. L	St. Paul	Ramsey	Jan. 31, "
Officer. Harvey	St Paul	Ramsey	Jan. 28, "
Ostrander, T. F	Wadena	Wadena	Jan. 12, "
Osborn, S. L	Mankato	Blue Earth	Jan. 17, "
O'Brien, James	Caledonia	Houston	Jan. 31, "
O'Mulcahy, Wm	Faribault	Rice	Feb. 28, "
O'Leary, T	Henderson	Sibley	March 1, "

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Odell, H. A	Minneapolis	Hennepin	March 30, 1881
Olney, F. P	Anoka	Anoka	April 9, 1881
O'Gorman, Henry	St. Paul	Ramsey	Aug. 16, 1880
O'Connor, C	Winnebago Agency	Blue Earth	March 21, 1881
O'Brien, James	St. Paul	Ramsey	May 3, 1881
Olds, G. E	Yellow Medicine	Yellow Medicine	Dec. 1, 1880
Otis, C. E	St. Paul	Ramsey	Aug. 18, 1881
O'Neill, W. F	Graceville	Big Stone	Sept. 24, 1881
Olney, F. P	Litchfield	Meeker	Oct. 6, 1881
Oxford, S. J	Detroit	Becker	Nov. 23, "
Olivier, John B	St. Paul	Ramsey	Nov. 28, "
O'Brien, C. D	St. Paul	Ramsey	Dec. 1, "
Ovitt, Albert B	Minneapolis	Hennepin	Dec. 20, "
Ostrander, T. F		Wadena	Jan. 12, 1882
Odney, C. C	Kerkhoven	Swift	Jan. 22, "
Olivier, Frank O	St. Paul	Ramsey	Jan. 23, "
Olson, Martin	Atwater	Kandiyohi	March 4, "
Olds, A. J	St. Charles	Winona	March 16, "
Onstine, Sylvester M	Chatfield	Fillmore	March 25, "
Olson, Peter M	Bratsberg	Fillmore	April 6, "
Odell, Robert R	Minneapolis	Hennepin	April 18, "
O'Leary, T	Avoca	Murray	May 1, "
Ozmun, E. H	St. Paul	Ramsey	May 8, "
Oppenhiem, Ansel	St. Paul	Ramsey	May 22, "
Ogarden, A. E	Sacred Heart	Renville	June 9, "
Olson, N. P	Grove City	Meeker	June 21, "
Olson, C. A	Crookston	Polk	July 28, "
Odney, H. C	Kerkhoven	Swift	Aug. 11, "
Ofstun, T. T	Glenwood	Pope	Sept. 12, "
Phelps, R	Breckenridge	Wilkin	Dec. 4, 1880
Parker, J. C	Sauk Centre	Stearns	Dec. 1, "
Partridge, H. A	Minneapolis	Hennepin	Dec. 2, "
Prescott, H. L	Brown's Valley	Traverse	Dec. 2, "
Paige, Howe	Minneapolis	Hennepin	Dec. 18, "
Palmer, G. H	Faribault	Rice	Jan. 10, 1881
Parke, C. G	Minneapolis	Hennepin	Jan. 22, "
Pearce, L. E	Morris	Stevens	Feb. 1, "
Peterson, A. P	Carver	Carver	Jan. 13, "
Pomery, H. S	St. Paul	Ramsey	Jan. 10, "
Porten, William	St. Paul	Ramsey	Jan. 3, "
Porter, N. T	Murdock	Swift	Jan. 31, "
Pumpelly, Samuel D	Morse	Lincoln	Jan. 13, "
Passavant, A	St. Paul	Ramsey	Feb. 1 "
Porter, J. E	Mankato	Blue Earth	Feb. 3, "
Patterson	Rochester	Olmsted	Feb. 12, "
Palmer, R. S	Minneapolis	Hennepin	Feb. 16, "
Phelps C	Morris	Stevens	Feb. 25, "
Pearsall, F. W	Lac qui Parle	Lac qui Parle	Feb. 27, "
Paine, D. A	Bird Island	Renville	March 19, "
Place, W. H	Brown's Valley	Traverse	March 21, "
Powell, G. E	Albert Lea	Freeborn	March 22, "
Partridge, H. E	Moorhead	Clay	March 28, "
Payne, George	Spring Valley	Fillmore	April 6, "
Paine, F. W	Duluth	St. Louis	April 8, "
Palmer, H. L	St. Paul	Ramsey	April 11, "
Powers, Gorham	Granite Falls	Yellow Medicine	March 25, "
Perry, Peter H	Kasson	Dodge	April 19, "

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Penney, R. L.	Minneapolis	Hennepin	April 30, 1881
Perkins, A. D.	Windom	Cottonwood	May 1, "
Piper, Carl	Minneapolis	Hennepin	May 4, "
Pickett, J. C. A	North Branch	Chisago	May 6, "
Pillsbury, C. F	Minneapolis	Hennepin	May 10, "
Pease, L. S	Faribault	Rice	May 19, "
Powell, M. E.	Redwood Falls	Redwood	May 20, "
Phillipi, P.	Barnesville	Clay	May 20, "
Pope, Jacob C.	Brown's Valley	Traverse	May 30, "
Polson, J. W	Mankato	Blue Earth	May 28, "
Prentice, E. H.	Minneota	Lyon	June 1, "
Praxel, A. A	Lamberton.	Redwood	June 4, "
Pixley, C. S	Litchfield	Meeker	June 4, "
Pond, J. P.	St Paul	Ramsey	June 14, "
Phelps, T. W.	Chester	Olmsted	June 6, "
Parker, J. L.	Minneapolis	Hennepin	June 16, "
Prestlien, J. M.	Tordenskjold	Otter Tail	July 20, "
Proctor, F. A.	Litchfield	Meeker	July 21, "
Prevey, Geo. W.	Montevideo	Chippewa	July 27, "
Perkins, O. F.	Northfield	Rice	July 30, "
Pope, C. T.	Worthington	Nobles	July 30, "
Pendergast, W. W.	Hutchinson	McLeod	Aug. 10, "
Perkins, G. H.	Willmar	Kandiyohi	Aug. 16, "
Pope, Jacob C.	Lac qui Parle	Lac qui Parle.	Aug. 18, "
Palmer, E. C	St. Paul	Ramsey	Aug. 25, "
Pike, N. C.	Lake City	Wabasha	Sept. 1, "
Putnam, Wm. H.	Red Wing	Goodhue	Sept. 1, "
Peterson, F. H.	Minneapolis	Hennepin	Oct. 13, "
Potter, Geo. F.	LaCrescent	Houston	Sept. 15, "
Parker. T. E.	St. Paul	Ramsey	Sept. 14, "
Peterson, W. A.	Worthington	Nobles	Oct. 1, "
Pease, R. W. S.	Minneapolis	Hennepin	Sept. 17, "
Plummer, W. A.	Minneapolis	Hennepin	Sept. 20, "
Palmer, G. M.	Mankato	Blue Earth	Sept. 26, "
Phelps, Wm. B.	Winona	Winona	July 27, "
Pratt, A. W.	Red Wing	Goodhue	Oct. 18, "
Perkins, J. W.	Minneapolis	Hennepin	Oct. 25, "
Plaisance, P.	Wheatland	Rice	Nov. 3, "
Pearce, H. M.	St. Paul	Ramsey	Nov. 5, "
Phelps, H. H.	Glyndon	Clay.	Nov. 10, "
Peaslee. E. B.	Minneapolis.	Hennepin	Nov. 12, "
Pierce. H. M.	Minneapolis	Hennepin	Nov. 12, "
Paine. Wm.	Brainerd	Crow Wing	Nov. 16, "
Peterson, E. P.	Litchfield	Meeker	Nov. 28, "
Parker. Geo. A.	Minneapolis	Hennepin	Dec. 5, "
Pratt. Frank K.	Minneapolis	Hennepin	Dec. 7, "
Percival F. J.	Minneapolis	Hennepin	Dec. 1, "
Page, H. W.	Austin	Mower	Dec. 15, "
Puntches, N. Q.	Ashby	Grant	Dec. 21, "
Plummer, J. C.	Minneapolis	Hennepin	Dec. 30, "
Power, George C.	St. Paul	Ramsey	Jan. 3, 1882
Platt, Charles	Fairmont	Martin	Jan. 9, "
Palmer, C. R.	New Richland	Waseca	Jan. 17, "
Pond, C, M.	Minneapolis	Hennepin	Jan. 20, "
Plumley, S. A.	Litchfield	Meeker	Jan. 24, "
Parker, Frank A.	Minneapolis	Hennepin	Feb. 2, "
Partridge, H. E.	St. Paul	Ramsey	Feb. 9, "

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.		
Pottgieser, J. M	St. Paul	Ramsey	Feb.	16,	1882
Page, Sherman	Austin	Mower	Feb.	17,	"
Peterson, Aug	Albert Lea	Freeborn	Feb.	19,	"
Parks, Chas	Cannon Falls	Goodhue	Feb.	9,	"
Parker, J. H	Albert Lea	Freeborn	March	1,	"
Palmer, T. R	St. Paul	Ramsey	March	2,	"
Paulson, N	Grove City	Meeker	March	6,	"
Pfaender, Hon. Wm	New Ulm	Brown	March	15,	"
Parker, O. J	Le Sueur	Le Sueur	March	16,	"
Patten, C. H	Winnebago City	Faribault	Jan.	23,	"
Poulson, K. P	Rush City	Chisago	April	5,	"
Parker, H. M	Minneapolis	Hennepin	March	31,	"
Phillips, S	Mazeppa	Wabasha	May	20,	"
Presson, H. F	Wadena	Wadena	April	11,	"
Peterson, Jr., John	Norwegian Grove	Clay	April	17,	"
Peet, Fred. T	Minneapolis	Hennepin	April	29,	"
Paine, T. M	Bird Island	Renville	April	17,	"
Paddock, L. A	New York Mills	Otter Tail	April	29,	"
Pierce, H. M	Crookston	Polk	May	1,	"
Pittman, G. W. M	Minneapolis	Hennepin	May	6,	"
Porter, C. H	Winona	Winona	May	11,	"
Perkins, W. A. A	Euclid	Polk	May	13,	"
Perkins, C. C	Faribault	Rice	May	22,	"
Parmelee, B. C	Waseca	Waseca	May	22,	"
Pitcher, O. O	Mankato	Blue Earth	June	7,	"
Palmer, R. M	Albert Lea	Freeborn	June	7,	"
Pans, H. A	Minneapolis	Hennepin	June	15,	"
Pope, J. T	Plainview	Wabasha	June	19,	"
Parker, A. W	Lamberton	Redwood	June	27,	"
Patterson, Alfred	Rochester	Olmsted	June	30,	"
Porter, Samuel	Atwater	Kandiyohi	May	1,	"
Pattee, W. S	Northfield	Rice	May	18,	"
Patterson, J. C	Princeton	Mille Lacs	June	24,	"
Parkinson, A. F	Crookston	Polk	July	17,	"
Peterson, P	Glenwood	Pope	July	20,	"
Pope, E. M	Mankato	Blue Earth	Jan.	9,	"
Palmer, G. H	Crookston	Polk	July	27,	"
Parker, Frank J	Marshall	Lyon	July	31,	"
Polk, A. D	Minneapolis	Hennepin	Aug.	16,	"
Prosser, R. H	Minneapolis	Hennepin	Aug.	18,	"
Parkinson, W. D	Fergus Falls	Otter Tail	Aug.	22,	"
Plase, Wm. H	Minneapolis	Hennepin	Aug.	23,	"
Parker, A. J	Ortonville	Big Stone	Aug.	3,	"
Pierce, A. P	Red Wing	Goodhue	Sept.	4.	"
Pettengill, A. E	Ortonville	Big Stone	Sept.	11,	"
Pratt, T. W	Zumbrota	Goodhue	Sept.	12,	"
Probst, Louis P	Delano	Wright	Sept.	27,	"
Peters, Simon C	Detroit	Becker	Oct.	17,	"
Parkhurst, S. H		Polk	Oct.	30,	"
Pfefferkorn, Geo	St. Charles	Winona	Nov.	1,	"
Propping, M. F	St. Paul	Ramsey	Nov.	1,	"
Petren, A. W	St. Paul	Ramsey	Nov.	3,	"
Quinn, John T		Carlton	Dec.	1,	1880
Qrish, L F	Pine Island	Goodhue	Jan.	15,	1881
Quirk, James	Waseca	Waseca	April	14,	"
Quarton, T. M	Walnut Station	Redwood	May	5,	"
Quinn, T. H	Faribault	Rice	July	18,	"
Qvale, G. E	Willmar	Kandiyohi	Oct.	18,	"

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Qually, Ole J	Moorhead	Clay	Dec. 12, 1881
Quick, J. A	Dassel	Meeker	Jan. 4, “
Quamsoc, O	Renville	Renville	March 15, “
Quinn, J. B	Faribault	Rice	March 2, “
Quist, Peter P	Wintrop	Sibley	April 15, “
Quist, P. M	Willmar	Kandiyohi	July 8, “
Rice, Jr., E	St. Paul	Ramsey	Dec. 23, 1880
Rising, F. A	Winona	Winona	Dec. 4, “
Rutherford, H. V	St. Paul	Ramsey	Dec. 23, “
Rumsey, W. B	Albert Lea	Freeborn	Dec. 18, “
Ruffee, C. A	Brainerd	Becker	Dec. 10, “
Rebstock, E. W	Winona	Winona	Jan. 1, 1881
Richter, E. W	Owatonna	Steele	Jan. 18, “
Rockwell, Geo. W	Ruchford	Fillmore	Jan. 28, “
Roberttson, M. C	Springfield	Brown	Jan. 20, “
Rogers, J. N	St. Paul	Ramsey	Jan. 27, “
Ramsey, T. K	Albert Lea	Freeborn	Jan. 15, “
Richter, Wm. N	St. Paul	Ramsey	Feb. 17, “
Ruger, S. W	Campbell	Wilkin	Feb. 18, “
Rust, G. H	Minneapolis	Hennepin	March 13, “
Rice, A. E	Willmar	Kandiyohi	March 21, “
Richardson, N	Little Falls	Morrison	March 24, “
Rothpletz, F. J	Perham	Otter Tail	March 26, “
Randolph, J. S	Minneapolis	Hennepin	March 26, “
Rotert, Edward	St. Paul	Ramsey	March 28, “
Richmond, C. B	St. Paul	Ramsey	March 28, “
Rigley, R. J	Redwood Falls	Redwood	March 31, “
Rogers, C. F	Lake City	Wabasha	April 2, “
Rogers, F L	St. Paul	Ramsey	April 8, “
Ranson, Scott	Willmar	Kandiyohi	Oct. 1, 1880
Reynolds, B. G	Winnebago City	Faribault	March 7, 1881
Reishus, O. S	Sacred Heart	Renville	May 1, “
Robison, Geo. T	Windom	Cottonwood	May 2, “
Rippe, John H	Brownsville	Houston	May 6, “
Robinson, J. L	Marshall	Lyon	May 12, “
Robeusen, Geo R	Minneapolis	Hennepin	May 26, “
Roberts, Wm. P	Minneapolis	Hennepin	June 1, “
Rose, Robert H	Mankato	Blue Earth	June 4, “
Roussain, E	Fond du Lac	St. Louis	June 8, “
Rothoff, John L	Kerkhoven	Swift	June 9, “
Reynolds, G. H	Alexandria	Douglass	June 13, “
Rodness, N. P	Willmar	Kandiyohi	June 20, “
Rodgers, John W	Glyndon	Clay	June 28, “
Randall, F. E	Ortonville	Big Stone	July 1, “
Ramsey, W. A	Minneapolis	Hennepin	Dec. 18, “
Randall, John H	St. Paul	Ramsey	July 1, “
Randall, Frank L	New Ulm	Brown	July 15, “
Robert, Jr., Frank	St. Paul	Ramsey	July 25, “
Reid, R. J	St. Paul	Ramsey	July 29, “
Roos, Oscar	Taylors' Falls	Chisago	Aug. 23, “
Randall, John H	Minneapolis	Hennepin	Aug. 29, “
Reynolds, J. W	Herman	Grant	Sept. 1, “
Robinson, C	Minneapolis	Hennepin	Sept. 16, “
Rossman, E. W	Minneapolis	Hennepin	Sept. 23, “
Roy, I. H	Little Falls	Morrison	Sept. 23, “
Roemer, J. A	Chaska	Carver	Oct. 10, “
Ross, C. H,	New Ulm	Brown	Oct. 17, “

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Ronning, O. J	Glenwood	Pope	Nov. 1, 1881
Rohrer, C. S		Ramsey	Nov. 7, “
Ruffee, C. A	Brainerd	Cass	Nov. 28, “
Read, R. L	Minneapolis	Hennepin	Dec. 1, “
Robinson, L. J	Windom	Cottonwood	Dec. 19, “
Randall, B. T	Granite Falls	Yellow Medicine	Dec. 20, “
Ridout, Edgar	Waterville	Le Sueur	Dec. 26, “
Randolph, F. W	Lake Benton	Lincoln	Dec. 27, “
Rice, F. C	Park Rapids	Cass	Dec. 30, “
Rierson, Knut	Lake Benton	Lincoln	Jan. 1, 1882
Rian, O. C	Elizabethtown	Otter Tail	Jan. 10, “
Russell, Ira O	East Granite Falls	Chippewa	Jan. 11, “
Ross, W. E. C	Blue Earth City	Faribault	Jan. 12, “
Riehl, Harry C	St. Paul	Ramsey	Jan. 14, “
Robinson, J B	Redwood Falls	Redwood	Jan. 16, “
Reynolds, R	Crookston	Polk	Jan. 23, “
Ray, John J	Springfield	Brown	Jan. 25, “
Rudolph, John C	New Ulm	Brown	Jan. 13, “
Reis, George		Ramsey	Jan. 20, “
Rogers, F	Minneapolis	Hennepin	Jan. 21, “
Redmond, James J	Benson	Swift	Feb. 1, “
Riebe, F. C	Norwood	Carver	Feb. 14, “
Roehm, George		Otter Tail	Feb. 15, “
Rowland, Andrew	Litchfield	Meeker	Feb. 16, “
Ramer, A. M	Lewiston	Winona	Feb. 21, “
Roe, Alva L	St. Paul	Ramsey	Feb. 27, “
Rockwood, C. J	Minneapolis	Hennepin	Feb. 25, “
Reeve, C. McC	Minneapolis	Hennepin	Aug. 1, “
Rice, F. O	Northfield	Rice	March 4, “
Rawson, Wm	Wadena	Wadena	March 7, “
Russell, Charles	Fergus Falls	Otter Tail	April 1, “
Rolfe, E. L	Minneapolis	Hennepin	April 1, “
Randall, Thomas	Amboy	Blue Earth	March 28, “
Reynolds, O. J	St. Paul	Ramsey	April 10, “
Russ, Joseph M	Verndale	Wadena	April 11, “
Rice, T. L	Winnebago City	Faribault	May 1, “
Rigg, Jr. John	Avoca	Murray	April 19, “
Raymond, Stiles	Red Wing	Goodhue	April 25, “
Rugland, S. C	Ashby	Grant	May 4, “
Rich, F. M	Renville	Renville	May 15, “
Rhodes, Wm. W	Lac qui Parle	Lac qui Parle	May 15, “
Rawson, H. E	Fergus Falls	Otter Tail	March 30, “
Robbins, Marius	Fillmore	Fillmore	June 1, “
Reimer, John	Mountain Lake	Cottonwood	June 16, “
Relf, Richard	Brainerd	Crow Wing	July 11, “
Rolfe, J. H	Minneapolis	Hennepin	July 15, “
Robertson, M	St. Paul	Ramsey	July 19, “
Richardson, W. E	Austin	Mower	Aug. 23, “
Richardson, Ira C	Rochester	Olmsted	Sept. 11, “
Roosen, C. G	Delano	Wright	Sept. 27, “
Rogers, Edward G	St. Paul	Ramsey	Sept. 28, “
Rand, Louis M	Winona	Winona	Oct. 19, “
Rathbone, M. N	Granite Falls	Yellow Medicine	Oct. 23, “
Reed, S. A	Minneapolis	Hennepin	Oct. 29, “
Ranney, W. W	Grand Meadow	Mower	Nov. 1, “
Roster, John N	Freebury	Houston	Nov. 15, “
Rogers, L. Z	Waterville	Le Sueur	Nov. 16, “

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Randall, A E	Ortonville	Big Stone	Nov. 24, 1882
Sprague, C. M	Sauk Center	Stearns	Dec. 1, 1880
Sherdian, Wm	Henderson	Sibley	Dec. 23, "
Smith, B. W	Minneapolis	Hennepin	Dec. 10, "
Studdart, J. F. A	St. Paul	Ramsey	Dec. 28, "
Smith, B. M	Minneapolis	Hennepin	Dec. 18, "
Simmons, H	Hector	Renville	Dec. 10, "
Sivart, J. G	Winona	Winona	Dec. 4, "
Sawyer, C. F	Minneapolis	Hennepin	Dec. 10, "
Swenson, S. A	Fisher's Landing	Polk	Jan. 17, 1881
Steinke, G. W	St. Peter	Nicollet	Jan. 20, "
Sherman, Jno. T	Wykoff	Fillmore	Jan. 28, "
Sickler, Frank W	Marshall	Lyon	Jan. 19, "
Steers, Water	Brown's Valley	Traverse	Jan. 16, "
Seeman, T	Rochester	Olmsted	Jan. 20, "
Shaw, Frank W	Minneapolis	Hennepin	Jan. 12, "
Stepan, J. H	Prague	Le Sueur	Jan. 24, "
Shimer, F. W	Chatfield	Fillmore	Jan. 10, "
Strobeck, C. H	Litchfield	Meeker	Jan. 10, "
Stillman, R. L	Minneapolis	Hennepin	Jan. 14, "
Stout, James C	Lake City	Wabasha	Jan. 1, "
Slingerland, T. S	Mantorville	Dodge	Feb. 1, "
Street, W. F	Sauk Rapids	Benton	Feb. 1, "
Shanley, John	St. Paul	Ramsey	Feb. 8, "
Stone, W. B	Red Wing	Goodhue	Feb 7, "
Swartz, Ira M	Fort Snelling	Hennepin	Feb. 7, "
Sanford, David	St. Paul	Ramsey	Feb. 9, "
Schroeder, John	Fergus Falls	Otter Tail	Jan. 14, "
Shoemaker, W. H.	Owatonna	Steele	Feb. 5, "
Sargent, T. T	Hutchinson	McLeod	Feb. 20, "
Steinbon, Louis	Winona	Winona	Feb. 19, "
Sawyer, W. F	Owatonna	Steele	March 6, "
Seymour, G. W	Taylors Falls	Chisago	March 1, "
Small, S. S	Minneapolis	Hennepin	March 8, "
Stewart, L M	Minneapolis	Hennepin	March 4, "
Snow, A. H	Winona	Winona	March 5, "
Stransen, John W	Crookston	Polk	March 7, "
Schoregge, W. F	Glencoe	McLeod	March 10, "
Schwartz, J. M	Shakopee	Scott	March 10, "
Streissguth, T. G	Arlington	Sibley	March 10, "
Sparks, J. L	Minneapolis	Hennepin	March 11, "
Swinton, W. H	St. Paul	Ramsey	March 17, "
Steenerson, E	Crookston	Polk	March 18, "
Shepard, Henry	Crookston	Polk	March 20, "
Sherman, N. E	Clayton	Faribault	March 24, "
Stoughton, R. A	Owatonna	Steele	March 27, "
Sherewood, C. L	Red Wing	Goodhue	March 30, "
Stam, D. E	Ortonville	Big Stone	April 2, "
Sheldon, C. C	Spring Valley	Fillmore	April 7, "
Soule, S. H	Mountain Lake	Cottonwood	Feb. 1, "
Smith, Albert	Minneapolis	Hennepin	Feb. 19, "
Stevens, C. M	Herman	Grant	April 18, "
Steenerson, Halvor,	Crookston	Polk	April 20, "
Sherman, G. C.	Rochester	Olmsted	April 25, "
Sawyer, J. A	Owatonna	Steele	April 27, "
Smith, Andrew J	Sauk Center	Stearns	April 28, "
Sanborn, E. P	St. Paul	Ramsey	May 1, "

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Sanborn, W. H	St. Paul	Ramsey.........	May 1, 1881
Stangeland, J. E.......	Rock Dell...........	Olmsted.........	May 9, “
Smith, R. E..........	Le Sueur............	Le Sueur........	May 14, “
Snyder, S. P...........	Minneapolis...	Hennepin.......	May 26, “
Shatwell, J. A.........	Alexandria...........	Douglas.........	May 28, “
Somerville, G. W......	Sleepy Eye..........	Brown..........	June 14, “
Spry, G. H............	Minneapolis.........	Hennepin	June 21, “
Sivertson, S. M.... ...	Atwater..............	Kandiyohi	July 1, “
Spaulding, H. C.......	Lu Verne...........	Rock..	June 3, “
Smith, E. R...........	Le Sueur...........	Le Sueur........	Jan. 14, “
Shepard, H. C.........	Worthington...... ..	Nobles	April 26, “
Smith, Frank...	Edgerton.............	Pipe Stone	July 2, “
Skinner, James H......	St. Paul	Ramsey..........	July 8, “
Smith, H. T...........	New York Mills.....	Otter Tail	July 16, “
Swift, Jr., L...........	Minneapolis.........	Hennepin	July 22, “
Shank, Wm. S..........	St. Paul	Ramsey..........	July 28, “
Stevens, G. G..........	Rushford........ ...	Fillmore	Aug. 1, “
Siebold, F.............	St. Paul	Ramsey..........	Aug. 1, “
Shaver, U. B..........	Kasson	Dodge	Aug. 8, “
Stiles, C. W	Lake Benton	Pipe Stone	Aug. 20, “
Seip, A. N............	Duluth...............	St. Louis	Aug. 26, “
Sencerbox, J. W.......	Shakopee	Scott	Sept. 1, “
Seymour, McNeil V....	Hastings	Dakota	Sept. 5, “
Swanstrom, A. P......	Red Wing...........	Goodhue	Sept. 8, “
Schultz, C. C..........	Minneapolis.........	Hennepin	Sept. 9, “
Sheffield, F. W........	Willmar	Kandiyohi	Sept. 24, “
Seely, L. Walter.......	Jackson	Jackson	Sept. 26. “
Smith, D. B	Austin	Mower	Oct. 12, “
Shaw, John M.........	Minneapolis.........	Hennepin	Oct. 15, “
Stolberg, John.........	Harris...............	Chisago.........	Oct. 18, “
Sherwood, C. L........	Benson	Swift...........	Oct. 24, “
Seiter, W. F..........	New Ulm...........	Brown...........	Oct. 26, “
Sorentz, C.......... .	Minneapolis.........	Hennepin	Oct. 27, “
Smith, A. C...........	Rochester	Olmsted.......	Nov. 2, “
Smith, A. L...........	Northfield.....	Rice	Nov. 12, “
Sackett, J. B.........	St. Peter...........	Nicollet.......	May 1, “
Smith. J. G..........	St. Cloud	Stearns.........	Nov. 15, “
Soule, S. C............	Mankato............	Blue Earth.....	Nov. 19, “
Small, S. S............	Minneapolis.........	Hennepin	Nov. 29, “
Slee, John W...... ...	Warren	Marshall	Nov. 30, “
Sperry, W. A..........	Owatonna	Steele..........	Nov. 24, “
Sevatson, E...........	Windom............	Jackson........	Dec. 1, “
Snyder, Fred B........	Minneapolis...	Hennepin	Dec. 3, “
Stordock, H. G..	Rothsay	Wilkin	Dec. 15, “
Shapleigh, Thos. C.....	Crookston	Polk............	Dec. 17, “
Stringer, Ed. C........	Hastings	Dakota	Dec. 20, “
Senn, J. A............	Sauk Rapids	Benton	Dec. 22, “
Sjoberg, H. S..........	Kirkhoven	Swift	Dec. 28, “
Sexton, A. G..........	Buffalo	Wright	Jan. 2, 1882
Seward, Victor C.......	Stillwater	Washington.....	Jan. 3, “
Smith, Charles A......	Herman.........	Grant ....t.	Jan. 9, “
Scriver, Hiram A......	Northfield...........	Rice............	Jan. 16, “
Smalley, P. J..........	Caledonia	Houston	Jan. 16, “
Sleeper, C. B	Brainerd............	Crow Wing.....	Jan. 16, “
Skillman, Phil.........	Red Wing..........	Goodhue	Jan. 18. “
Stout, Will O..........	Red Wing...........	Goodhue	Jan. 18, “
Sander, Theodor.......	St. Paul	Ramsey.........	Jan. 24, “

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Smith, Henry A	Duluth	St. Louis	Jan. 31, 1882
Sabine, Geo. F.	Marine Mills	Washington	Jan. 2, "
Siegenthaler, G		Ramsey	Jan. 22, "
Stevens, M. S.	Morris	Stevens	Jan. 28, "
Stiles, T. S.	Montevideo	Chippewa	Jan. 31, "
Shaw, Wm	Owatonna	Steele	Feb. 6, "
Stow, Alex. W	Minneapolis	Hennepin	Feb. 14, "
Smith, C. B	Minneapolis	Hennepin	Feb. 16, "
Shortt, C. J	Austin	Mower	Feb. 17, "
Slocum, Jr., James	Norwood	Carver	Feb. 18, "
Stewart, Dexter G	Marshall	Lyon	Feb. 20, "
Sanborn, G. E	Brownsdale	Mower	Feb. 21, "
Stickney, Villet B	St. Paul	Ramsey	Feb. 28, "
Steinke, A. R	Gaylord	Sibley	March 1, "
Stockton, A. W	Faribault	Rice	April 3, "
Shepard, John W	St. Vincent	Kittson	Feb. 1, "
Swenson, J. A	St. Paul	Ramsey	Feb. 7, "
Stanley, David B	Marine Prairie	Stearns	Feb. 8, "
Stevens, Hanclet	Litchfield	Meeker	Feb. 16, "
Schreiter, Wenzel A	Red Lake Falls	Polk	Feb. 27, "
Shaw, Lafayette	St. Paul	Ramsey	Feb. 28, "
Smith, C. W	Fergus Falls	Otter Tail	March 4, "
Stevens, Gardner	Red Lake Falls	Polk	March 6, "
Stoneman, O. A	Minneapolis	Hennepin	March 7, "
Shoemaker, W. H	Owatonna	Steele	March 8, "
Swift, Levant R	St. Cloud	Stearns	March 10, "
Scheffer, Albert	St. Paul	Ramsey	March 12, "
Swan, James B	Rapidan	Blue Earth	March 14, "
Spaulding, W. P	Brainerd	Crow Wing	March 15, "
Searls, F. E	Sauk Centre	Stearns	March 15, "
Sprague, Philander	Red Wing	Goodhue	March 18, "
Smith, A. H	Taopi	Mower	March 23, "
Smallidge, J. W	Claremont	Dodge	March 25, "
Straub, Wm	Fergus Falls	Otter Tail	March 27, "
Shoemaker, Sanford	Fergus Falls	Otter Tail	March 29, "
Schmidt, H	Owatonna	Steele	April 1, "
Stowe, M	Brandon	Douglas	April 1, "
Stevens, Edmund	Winnebago	Houston	April 1, "
Smith, L. J	Austin	Mower	April 3, "
Schofield, A. J	Stillwater	Washington	April 5, "
Steel, J. W	Wabasha	Wabasha	April 7, "
Shores, A. J	Minneapolis	Hennepin	April 10, "
Sumner, W. L	Minneapolis	Hennepin	April 10, "
Seager, J. W	St. James	Watonwan	April 12, "
Sleeper, O. A	Brownsdale	Mower	April 14, "
Southworth, E	Shakopee	Scott	April 20, "
Scott, A. F	Minneapolis	Hennepin	May 10, "
Snyder, A. J	Owatonna	Steele	April 1, "
Siverts, Samuel A	Northfield	Rice	April 11, "
Scram, W. T	Ortonville	Big Stone	April 17, "
Schaller, Albert	Hastings	Dakota	April 17, "
Storey, L. T	Sauk Centre	Stearns	April 29, "
Smith, Orrien F	Winona	Winona	May 1, "
Sanders, J. H	Red Lake Falls	Polk	April 29, "
Sorensen, Ernest	Appleton	Swift	May 1, "
Scott, A. M	Minneapolis	Hennepin	May 1, "
Stewart, M. S	Duluth	St. Louis	May 1, "

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Skillings, F. H	Mankato	Blue Earth	May 2, 1882
Schutz, John G	Marshall	Lyon	May 5, "
Schmidt, H. G. C	Winona	Winona	May 5, "
Stevens, H. F	St. Paul	Ramsey	May 6, "
Smith, D. D	Cedar Mills	Meeker	May 8, "
Stocking, F. E	Brownton	McLeod	May 9, "
Seeley, D. W	Granger	Fillmore	May 10, "
Sturley Edward	St. Paul	Ramsey	May 10, "
Shaw, J	Chester	Olmsted	May 20, "
Sinclair, A. W	Fairmont	Martin	May 22, "
Swanstrom, J. W	Red Wing	Goodhue	May 25, "
Street, W. F	St. Cloud	Stearns	June 1, "
Smith, W. C	Minneapolis	Hennepin	June 1, "
Schurmeier, B. F	St. Paul	Ramsey	June 1, "
Sweet, D. E	Pipe Stone	Pipe Stone	June 3, "
Schlener, J. A	Minneapolis	Hennepin	June 12, "
Stuart, D. M	Pipe Stone	Pipe Stone	June 14, "
Schurmeier, W. H	St. Paul	Ramsey	June 16, "
Scott, Jr., Geo. W	Minneapolis	Hennepin	June 19, "
Simonitsch, M	Norwood	Carver	June 20, "
Smith, Abbot E	Lake City	Wabasha	June 22, "
Strong, H. W	Graceville	Big Stone	June 25, "
Simons, Geo. H	Litchfield	Meeker	June 28, "
Smith, Harvey P.	St. Vincent	Kittson	July 1, "
Sheedy, J. D	Austin	Mower	July 7, "
Streeter, C. E	Osakis	Douglas	July 10, "
Stuntz, G. R	Duluth	St. Louis	July 12, "
Stoddart, Thomas		Ramsey	July 15, "
Swenson, P. P	Minneapolis	Hennepin	July 18, "
Shuey, A. M	Minneapolis	Hennepin	July 19, "
Sistermans, H. H	Belle Plaine	Scott	July 22, "
Sherman, J. L	Lake Park	Becker	July 24, "
Small, Isaac	Adrian	Nobles	July 26, "
Seavey, Chas. F	Minneapolis	Hennepin	July 31, "
Stine, W. B	Hadley	Murray	Aug. 3, "
Smith, James M	St. Paul	Ramsey	Aug. 8, "
Scott, B. F	Cambridge	Isanti	Aug. 11, "
Spooner, M. A	Moorhead	Clay	Aug. 19, "
Spooner, L. C	Morris	Stevens	Aug. 21, "
Stanley, W	Lyle	Mower	Aug. 21, "
Sheldon, H. B	Grand Meadow	Mower	Aug. 22, "
Stocker, H. D	Lake City	Wabasha	Aug. 5, "
Simpson, Thomas	Winona	Winona	Aug. 15, "
Silloway, Chas. B	Minneapolis	Hennepin	Aug. 18, "
Simonton, Edward	St. Paul	Ramsey	Aug. 30, "
Sutherland, Byron	Minneapolis	Hennepin	Sept. 1, "
Searles, J. N	Stillwater	Washington	Sept. 9, "
Syverson, Ole	Tamaroc	Marshall	Sept. 18, "
Schaefer, J. P	Melrose	Stearns	Sept. 21, "
Swartwood, E. D	Rochester	Olmsted	Sept. 26, "
Seeley, Isaac C	Minneapolis	Hennepin	Jan. 10, "
Stratton, A. M	Minneapolis	Hennepin	April 17, "
Sterling, E. E	Lake Benton	Lincoln	Sept. 30, "
Smith, F. A	Minneapolis	Hennepin	Oct. 2, "
Shannon, C. E	Granite Falls	Yellow Medicine	Oct. 6, "
Swaffer, W. J	Walnut Grove	Redwood	Oct. 10, "
Stuart, C. J	Breckenridge	Wilkin	Oct. 18, "

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Scott, R. H.	Jordan	Scott	Oct. 23, 1882
Seavey, C. F.	Lake City	Wabasha	Oct. 24, "
Stone, Azro A.	St. Peter	Nicollet	Oct. 24, "
Shandrew, J. C.	St. Paul	Ramsey	Aug. 10, "
Squires, G C.	St. Paul	Ramsey	Nov. 1, "
Shandrew, Chas.	St. Paul	Ramsey	Nov. 1, "
Stone, Geo. M.	St. Paul	Ramsey	Nov. 1, "
Seger, H.	Winnebago City	Faribault	Nov. 3, "
Sherwood, C. D.	Rushford	Fillmore	Nov. 10, "
Smullen, Thomas H.	LeSueur	Le Sueur	Nov. 13, "
Sundin, John	Carver	Carver	Nov. 17, "
Sparks, J. L.	Minneapolis	Hennepin	Nov. 24, "
Stenerson, A.	Crookston	Polk	Nov. 27, "
Thompson, Peter	Worthington	Nobles	Dec. 16, 1880
Terry, John C.	St. Paul	Ramsey	Dec. 13, "
Truesdell, J. E.	Owatonna	Steele	Oct. 23, "
Thompson, L. E.	Stillwater	Washington	Jan. 16, 1881
Thompson, C. T.	Minneapolis	Hennepin	Feb. 3, "
Turner, H. R.	Willmar	Kundiyohi	Feb. 23, "
Trecartin, H. B.	Campbell	Wilkin	March 17, "
Tattersall, W. K.	High Forest	Olmsted	March 29, "
Tubbs, Wm.	Monticello	Wright	April 1, "
Tillotson, W. R.	Moorehead	Clay	April 1, "
Thomas, A. J.	Dodge Center	Dodge	April 4, "
Town, J. A.	Worthington	Nobles	April 20, "
Tobiason, T. R.	Fergus Falls	Otter Tail	May 12, "
Tirrell, C. B.	Minneapolis	Hennepin	May 18, "
Tolman, Frank	St. Cloud	Stearns	May 21, "
Tawney, J. A.	Winona	Winona	June 1, "
Tolles, S. H.	Minneapolis	Hennepin	June 3, "
Thornton, F. M.	Benson	Swift	June 6. "
Taylor, M. D.	St. Cloud	Stearns	June 17, "
Thomas, Wm.	Mankato	Blue Earth	June 23, "
Teisberg, A. K.	Fergus Falls	Otter Tail	July 23, "
Trott, Hermann	St. Paul	Ramsey	Aug. 11, "
Telfer, George M.	Beardsley	Big Stone	Sept. 6, "
Tanner, W. P.	Cannon Falls	Goodhue	Sept. 27, "
Thurston, S. E.	Willmar	Kandiyohi	Oct. 4, "
Tuttle, M. C.	Campbell	Wilkin	Oct. 20, "
Torkelson, T. E.	New Ulm	Brown	Oct. 22, "
Teeple, A. V.	St. Paul	Ramsey	Oct. 27, "
Thomas, Wm. C.	Minneapolis	Hennepin	Nov. 22, "
Terry, Alfred	Fulda	Murray	Nov. 25, "
Thayer, B.	Spring Valley	Fillmore	Nov. 24, "
Titus, M. E.	Montevideo	Chippewa	Nov. 25, "
Thompson, M. G.	Minneapolis	Hennepin	March 25, "
Thompson, Jr., Josiah	Minneapolis	Hennepin	March 25, "
Thompson, O. J.	Fergus Falls	Otter Tail	Dec. 12, "
Tomlinson, R.	Minneapolis	Hennepin	Dec. 12, "
Thayer, S. R.	Minneapolis	Hennepin	Dec. 12, "
Taylor, H. Knox	St. Paul	Ramsey	Dec. 17, "
Thompson, J. W.	Lester	Rice	March 2, 1882
Tibbetts, Till	Redwood Falls	Redwood	Jan. 1, "
Tarbox, James C.	Monticello	Wright	Jan. 10, "
Trace, M. R.	River	Benton	Jan. 23, "
Thornton, J. J.	St. James	Watonwan	Feb. 1, "
Tadsen, L. B.	Appleton	Swift	Jan. 30, "

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Thoe, F. Jackson	Thoe P. O	Dodge	Feb. 9, 1882
Tuesley, C. H	Perham	Otter Tail	Feb. 10, "
Thompson, J. F	Nicollet Station	Nicollet	Feb. 25, "
Trueman, John	Hector	Renville	Feb. 25, "
Torrance, Ell	Minneapolis	Hennepin	Feb. 11, "
Titus, T. H	Rochester	Olmsted	Feb. 23, "
Thomas, Richard	Parker's Prairie	Otter Tail	March 10, "
Turner, Daniel N	Worthington	Nobles	April 15, "
Treat, G. L	Alexandria	Douglas	April 18, "
Tubbs, H. L	Minneapolis	Hennepin	April 21, "
Tredwell, C. E	Minneapolis	Hennepin	April 8, "
Taylor, Robert	Kasson	Dodge	April 13, "
Thurstenson, B	Cokato	Wright	April 28, "
Todd. Wm. P	Brown's Valley	Traverse	May 29, "
Tenny, John	Faribault	Rice	June 5, "
Tourtellotte, J. F	Winona	Winona	July 1, "
Temple, J. A	Minneapolis	Hennepin	July 14, "
Trask, J. F	Le Roy,	Mower	July 24, "
Thompson, C. J	St. Paul	Ramsey	Aug. 4, "
Thompson, H. F	Duluth	St. Louis	Sept. 2, "
Tousley, John W	Minneapolis	Hennepin	Aug. 11, "
Tousley, Roswell	Le Sueur	Le Sueur	Sept. 19, "
Townley, J. L	Faribault	Rice	Sept. 7, "
Thompson, J. M	Sleepy Eye	Brown	Oct. 14, "
Timolat, H. N	Minneapolis	Hennepin	Oct. 30, "
Truesdale, H. C	Minneapolis	Hennepin	Nov. 2, "
Tubbs, L. E	Sauk Center	Stearns	Nov. 10, "
Terwilliger, S. R	Oronoco	Olmsted	Nov. 15, "
Totton, Harry S	Minneapolis	Hennepin	Nov. 23, "
Taylor, Oscar	St. Cloud	Stearns	Jan. 9, "
Truesdell, J. E	Owatonna	Steele	Oct. 23, "
Ticknor. F. A	Austin	Mower	Nov. 23, "
Ufford, N. B	Winona	Winona,	Nov. 4, 1881
Underhill, Isaac M	Crookston	Polk	Aug. 8, 1882
Van Brunt, W	Duluth	St. Louis	Dec. 16, 1880
Vinton, W. H	Wasioja	Dodge	Dec. 18, 1880
Valder, Hans	Newbury	Fillmore	Jan. 8, 1881
Voreis, B. F	Fairmont	Martin	Jan. 3, "
Van Duzen, R. L	Rochester	Olmsted	Jan. 9, "
Van Duzee, E. M	St. Paul	Ramsey	Feb. 17, "
Vervais, J. O	St. Paul	Ramsey	March 1, "
Van Vliet, L. S	Lake City	Wabasha	March 11, "
Vaughan, P. D	Lansing	Mower	April 1, "
Vandervort, J. B	Fair Haven	Stearns	May 18, "
Vreyens, P. A. N	Norwood	Carver	May 17, "
Von Hadeln, H	Perham	Otter Tail	May 24, "
Veenhoven, E	Pine City	Pine.	July 23, "
Vollmer, F	Winsted Lake	McLeod.	Aug. 5, "
Von Schlegell, F	Minneapolis	Hennepin	Aug, 4, "
Vail, Oscar C	Minneapolis	Hennepin.	Nov. 16, "
Vik, L. A	Willmar	Kandiyohi	Jan. 17, 1882
Van Dyke, Robert	Wabasha	Wabasha	Jan. 1, "
Van Cleve, E. M	St. Paul	Ramsey	March 1, "
Van Wormer, C	Princeton	Mille Lacs	April 22, "
Van Camp, G. H	Austin	Mower	April 22, "
Veeder, B. W	Getty	Stearns	April 24, "
Vermilye, D. B	St. Paul	Ramsey	May 30, "

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Van Wert, C. G	Minneapolis	Hennepin	June 8, 1882
Vance, D. E	Winona	Winona	July 15, “
Von Tobel, Jr., R	Northfield	Rice	Sept. 23, “
Van Hoesen, T B	Alexandria	Douglas	Mrch 7, “
Van Norman, F	Minneapolis	Hennepin	Oct. 13, “
Van Slyck, L	Hastings	Dakota	July 12, “
Weston, G. A	Faribault	Rice	Dec. 31, 1880
Whitmore, H. B	Minneapolis	Hennepin	Dec. 17, “
Worrall, J. C	Minneapolis	Hennepin	Dec. 27, “
Ward, G. B	Alexandria	Douglas	Dec. 1, “
Webster, C. C	Red Wing	Goodhue	Feb. 2, 1881
White, John W	St. Paul	Ramsey	Jan 24, “
Ward, C. T	St. Paul	Ramsey	Jan. 6, “
Willard, S. J	Red Wing	Goodhue	Feb. 1, “
Westphal, A	New Ulm	Brown	Jan. 7, “
Westman, G	Cannon Falls	Goodhue	Jan. 19, “
Willford, Wm	Boomer	Fillmore	Jan. 18, “
Willard, M. G	Mankato	Blue Earth	Jan. 20, “
Widstrand, C. A	Minneapolis	Hennepin	Jan. 7, “
Webster, F. W	Herman	Grant	Jan. 15, “
Wilson, Edgar W	Minneapolis	Hennepin	Jan. 18, “
Whitmore, J. M	Montevideo	Chippewa	Jan. 7, “
West, L. L	Sauk Center	Stearns	Jan. 18, “
Wimer, A. S	Perham	Otter Tail	Jan. 15, “
Wooldridge, E. S	Stewartville	Olmsted	Jan. 27, “
Wilson, C. C	Rochester	Olmsted	Jan. 31, “
Woodbourne, Fred	St. Paul	Ramsey	Feb. 10, “
Wooley, John G	Minneapolis	Hennepin	Feb. 5, “
Williams, D. H	Rochester	Olmsted	Mrch 1, “
Wardell, J. M	Tracy	Lyon	Mrch 1, “
Welch, Wm	St. Paul	Ramsey	Mrch 9, “
Westlake, C	St. Cloud	Stearns	Mrch 10, “
Wellcome, F. H	Granite Falls	Yellow Medicine	April 11, “
Wood, H. J	Detroit	Becker	Mrch 16, “
Watson, B. K	Lakeland	Washington	Mrch 21, “
Willson, Mark	Winona	Winona	Mrch 22, “
Webber, B. F	New Ulm	Brown	Mrch 25, “
Whitney, C. H	Marshall	Lyon	April 1, “
Warfield, C. C	Fergus Falls	Otter Tail	April 1, “
Whitcomb, G. F	Alexandria	Douglas	April 1, “
Watkins, S. J	Mankato	Blue Earth	April 20, “
Ward, H. L	Fairmont	Martin	Feb. 16, “
Warren, A. P	Morris	Stevens	April 22, “
Weide, John A	St. Paul	Ramsey	April 25, “
Wyckoff, J. M	Le Roy	Mower	April 27, “
Westergaard, O. L	Red Wing	Goodhue	May 3, “
Williams, M. M	St. Paul	Ramsey	May 7, “
Webber, M	LuVerne	Rock	May 10, “
Webber, C. L	Walnut Station	Redwood	May 10, “
Williams, J. C	Minneapolis	Hennepin	May 21, “
Wheeler, R. B	Austin	Mower	May 25, “
Watson, F. T	Morris	Stevens	June 1, “
Williams, G. S	Montevideo	Chippewa	June 1, “
Wakefield, C. N	Winona	Winona	June 4, “
Walker, E. H	Marine Mills	Washington	June 10, “
Wells, Adelbert	Lake City	Wabasha	June 22, “
Warren, A. P	St. Paul	Ramsey	June 22, “

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Wing, J. E	St. Cloud	Stearns	June 30, 1881
Woodford, A. E.	Lake Benton	Lincoln	July 1, "
Williams, S. C	St. Paul	Ramsey	June 20, "
Whiting, S	Clearwater	Wright	July 6, "
White, Edwin	Minneapolis	Hennepin	July 8, "
Wheeler, L. G	Austin	Mower	July 12, "
Warren, J. E	Howard Lake	Wright	July 19, "
Wood, George A	Ortonville	Big Stone	Aug. 1, "
Whitford, N	Henderson	Sibley	Aug. 3, "
Williamson, H. M.	Perham	Otter Tail	Aug. 15, "
Weaver, Ed	Mankato	Blue Earth	Aug. 21, "
Wilhelm, Henry	Round Mound	Traverse	Aug. 23, "
Williston, W. C	Red Wing	Goodhue	Aug. 26, "
Washburn, C. X	Rochester	Olmsted	Sept. 1, "
Webster, Jr., John	Red Wing	Goodhue	Sept. 1, "
Willis, John W	St. Paul	Ramsey	Sept. 10, "
Willis, E. G	Fisher's Landing	Polk	Sept. 15, "
Wetenhall, John B	Minneapolis	Hennepin	Sept. 20, "
Washburn, J. L	Mankato	Blue Earth	Sept. 24, "
Williamson, J. D	Minneapolis	Hennepin	Sept. 27, "
Whitney, B. H	Carrie	Murray	Oct. 1, "
Wolford, Wm. L	Minneapolis	Hennepin	Oct. 3, "
Wright, G. L	Mankato	Dakota	Oct. 30, "
Watson, S. H	St. Paul	Ramsey	Oct. 18, "
Winsor, P	Fergus Falls	Otter Tail	Nov. 15, "
Whittier, F A	Hastings	Dakota	Nov. 20, "
Weger, John	Kasota	Le Sueur	Nov. 22, "
Webster, E. E	Moorhead	Clay	Nov. 28, "
Wilson, E. M	Minneapolis	Hennepin	Nov. 30, "
West, J. P	Wells	Faribault	Nov. 28, "
Wengler, T. O	Minneapolis	Hennepin	Dec. 6, "
Webber, M. B	Winona	Winona	Dec. 6, "
Werner, N. O	Red Wing	Goodhue	Dec. 10, "
White, C. R	Pine Island	Goodhue	Dec. 11, "
Wheaton, C. S	Elk River	Sherburne	Dec. 13, "
Warren, E. D	Minneapolis	Hennepin	Dec. 13, "
Whitmore, George A	Montevideo	Chippewa	Dec. 22, "
Williams, John M	Minneapolis	Hennepin	Dec. 30, "
Webster, E. M	Glenwood	Pope	Jan. 1, 1882
Wendell, J. H	Buffalo	Wright	Jan. 1, "
Ward, Melvin O	Holding's Ford	Stearns	Jan. 6, "
Warner, Fred L	Redwood	Redwood	Jan. 13, "
Wood, Owen J	Montevideo	Chippewa	Jan. 17, "
Wilson, Frank M	Red Wing	Goodhue	Jan. 18, "
Wilkins, W. T	Austin	Mower	Jan. 25, "
Wilcox, Byron	Hancock	Stevens	Jan. 25, "
Walch, Silas B	St. Paul	Ramsey	Jan. 26, "
White, Harrison	Beaver Creek	Rock	Jan. 28, "
Webb, Charles	Preston	Fillmore	Feb. 22, "
Wells, H. R	Preston	Fillmore	Feb. 22, "
Wedge, A. G	Albert Lea	Freeborn	Jan. 28, "
Wilson, H. A.	St. Paul	Ramsey	Feb. 14, "
Westmann, Gustavus	Cannon Falls	Goodhue	Feb. 28, "
Woodard, J. C	St. Charles	Winona	March 1, "
Worthington, R. M	Little Falls	Morrison	March 6, "
Wilber, Jr., H. C	Wyattville	Winona	March 7, "
Wheelock, Lewis L	Owatonna	Steele	March 10, "

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Warde, A. G	Avon	Stearns	March 13, 1882
Whalen, Thomas	Mantorville	Sibley	March 15, "
Watkins, Wm. T	Minneapolis	Hennepin	March 15, "
Wynkoop, W. H	Rush City	Chisago	March 15, "
Wilson, D. H	Brainerd	Crow Wing	March 18, "
Walz, Joseph	Cold Springs	Stearns	March 30, "
Wallin, Alfred	Redwood Falls	Redwood	April 10, "
Wilson, Frank T	Stillwater	Washington	April 11, "
Whitford, E. A	Hastings	Dakota	April 14, "
Wells, Henry H	Morris	Stevens	April 15, "
Woodward, F. E	Langdon	Washington	May 3, "
Wing, K. W	Minneapolis	Hennepin	March 8, "
White, W. C	Hector	Renville	April 12, "
Whitney, J. C	Minneapolis	Hennepin	April 24, "
Whitney, D. D	Minneapolis	Hennepin	April 25, "
Wold, F. H	Willmar	Kandiyohi	May 1, "
Walders, K. O	Herman	Grant	April 1, "
Williams, M. W	Spring Valley	Fillmore	May 1, "
Walter, Henry	Odessa	Lac qui Parle	May 1, "
Webster, H. B	Sabin	Clay	May 8, "
Weiser, J. M	Brownsdale	Mower	May 10, "
Webb, Edward	St. Paul	Ramsey	May 13, "
Webb, F. C	Owatonna	Steele	May 15, "
Wheeler, W. C	Minneapolis	Hennepin	May 15, "
Webster, Geo. O	Moorhead	Clay	May 20, "
Wilgus, E. P	St. Paul	Ramsey	May 22, "
Williams, C. J	St. Paul	Ramsey	May 29, "
Wheaton, O	Mobel	Fillmore	April 20, "
Wiswell, J. A	Mankato	Blue Earth	May 10, "
Williams, D D	Bird Island	Renville	May 21, "
Wilkins, T	Spring Valley	Fillmore	May 23, "
Wheeler, O. H	Austin	Mower	June 3, "
Wright, Thomas	Winona	Winona	June 15, "
Woodard, J. S	Minneapolis	Hennepin	June 17, "
White, Oliver R	Hector	Renville	June 26, "
Wolverton, J. A	Minneapolis	Hennepin	June 27, "
Werring, H	Golden Gate	Brown	March 27, "
Walters, J. A	Minneapolis	Hennepin	July 15, "
Wilson, Charles M	Duluth	St. Louis	July 18, "
Willard, Wm. A	Minneapolis	Hennepin	July 19, "
Walseth, J	Fisher's Landing	Polk	July 20, "
Weinmann, J	Faribault	Rice	Aug. 2, "
Whipple, A. O	Northfield	Rice	Aug. 11, "
Woodbury, D. M	Taylors Falls	Chisago	Aug. 21, "
Whitney, E. C	Minneapolis	Hennepin	Aug. 24, "
Watts, William	Crookston	Polk	Aug. 24, "
Woodman, P. M	Minneapolis	Hennepin	July 19, "
Waymouth, Harry E	St. Paul	Ramsey	July 24, "
Wallace, James P	Pelican Rapids	Otter Tail	Aug. 21, "
Wetherly, George	Warren	Marshall	Aug. 26, "
Weibeler, W. H	Belle Plaine	Scott	Sept. 9, "
Wheelden, E. F	Fergus Falls	Otter Tail	Sept. 10, "
Wilcox, Frank J	Northfield	Rice	Sept. 13, "
West, Andrew E	Lac qui Parle	Lac qui Parle	Sept. 20, "
Williams, Henry L	St. Paul	Ramsey	Sept. 21, "
Watson, F. E	Wells	Faribault	Sept. 23, "
Webster, Wm. W	Clear Water	Wright	Oct. 4, "

NAME.	RESIDENCE.	COUNTY.	DATE OF COMMISSION.
Weed, James H	St. Paul	Ramsey	July 5, 1882
Willyard, W. S	Kasson	Dodge	Sept. 22, "
Willard, Geo. H	Minneapolis	Hennepin	Sept. 29, "
Whitacre, R. B		Ramsey	Oct. 9, "
Webb, William	Sterling Centre	Blue Earth	Oct. 26, "
Witchie, E. E	Minneapolis	Hennepin	Nov. 1, "
Webster, Chas. M	Minneapolis	Hennepin	Nov. 1, "
Walsh, G. W	St. Paul	Ramsey	Oct. 27, "
Wilde, Fr. F	St. Paul	Ramsey	Oct. 28, "
White, Fred H	Minneapolis	Hennepin	Nov. 14, "
Wight, Henry	Crookston	Polk	Nov. 18, "
Williams, George	Red Wing	Goodhue	Nov. 15, "
Wood, E. H	St. Paul	Ramsey	Nov. 18, "
Yale, C. B	Winona	Winona	Dec. 18, 1880
Young, J. W	Dakota	Winona	Feb. 1, 1881
Yoder, James M	Verndale	Wadena	May 17, "
Yale, C. B	Minneapolis	Hennepin	Aug. 4, "
Yolton, H. D	Town'p New Hartford	Winona	Aug. 9, "
Young, E. T	Appleton	Swift	Oct. 14, "
Young, T. F	Benson	Swift	Jan. 2, 1882
Yale, W. H	Winona	Winona	March 2, "
Yarchaw, H. C	Minneapolis	Hennepin	April 6, "
Young, Howell W	Minneapolis	Hennepin	Oct. 20, "
Zapp, John	St. Cloud	Stearns	Dec. 14, 1880
Ziebarth, Wm	Delano	Wright	Feb. 15, 1881
Zecher, John B	St. Charles	Winona	Feb. 22, "

LIST OF COMMISSIONERS

FOR THE STATE OF MINNESOTA, TO TAKE ACKNOWLEDGMENTS, ETC., IN COMMISSION, DECEMBER 1, 1882.

Resident in California.

NAME.	RESIDENCE.	Date of Appointment.
Smith, N. P.	San Francisco	Dec. 30, 1879
Chattin, Edward	San Francisco	Nov. 30, 1881
Joice, E. V.	San Francisco	Sept. 16, 1882

Resident in Colorado.

Netter, G.	Denver	Sept. 7, 1880
Mitchell, David	Denver	May 18, 1881

Resident in District of Columbia.

Beall, John E.	Washington	April 29, 1880

Resident in Connecticut.

Gordon, D. G.	Hartford	Jan. 5, 1880
Taintor, Henry E.	Hartford	Dec. 3, 1881

Resident in Georgia.

Adams, Wm. B.	Savannah	Sept. 23, 1881

Resident in Illinois.

NAME.	RESIDENCE.	Date of Appointment.
Hoyne, P. A	Chicago	Jan. 5, 1880
King, Simeon W	Chicago	Dec. 4, 1880
Willard, S. S	Chicago	Jan. 27, 1882
Tichenor, Lyman B	Chicago	April 6, 1882
Crandon, Frank P	Chicago	June 10, 1882

Resident in Kentucky.

Stucky, Harry	Louisville	Feb. 1, 1882
Reinecke, Wm	Louisville	May 1, 1882

Resident in Louisiana.

Hero, Geo. A	New Orleans	April 23, 1880
Soinat, Meloncy C	New Orleans	April 18, 1882

Resident in Massachusetts.

Jennison, Samuel	Boston	Jan. 12, 1881
Merrihew, Edwin T	Boston	Sept. 27, 1881
Chapman, J. W	Boston	Jan. 23, 1880
Clark, Hamilton D	Medford	Aug. 24, 1881
Hill, J. Henry	Worchester	Mar. 27, 1881
Brackett, J. Q. A		Oct. 15, 1881
Stone, Philip S	Boston	Dec. 20, 1881
Shaw, Charles A	Boston	May 29, 1882
Braman, J. B	Boston	June 26, 1882
Fitch, Henry H	Boston	July 25, 1882
Jones, E. J	Boston	Aug. 31, 1882

Resident in Michigan.

Waterman, Wm. J	Detroit	July 1, 1880

Resident in Missouri.

Hodgin, J. W	St. Louis	Dec. 12, 1879
Perkins, Fred W	Kansas City	June 16, 1881
Greene, Jr., C. S	St. Louis	Aug. 9, 1882

Resident in Maryland.

Reardon, G. Everett	Baltimore	May 9, 1881
Hoffman, Philip H	Baltimore	Jan. 14, 1881

Resident in North Carolina.

NAME.	RESIDENCE.	Date of Appointment.
Sherwood, J. M	Raleigh	March 18, 1880

Residence in New York.

Follett, George	New York City	March 24, 1881
Kilvert	New York City	March 7, 1881
Saunders, Frank	New York City	May 13, 1881
Burnham, F. A	New York City	Dec. 24, 1879
Crannell, M	Albany	March 8, 1880
Clifford, T. B	New York City	May 18, 1880
DuBois, J	New York City	May 19, 1880
Grevel, Wm	New York City	April 20, 1880
Hay, J. R	New York City	May 23, 1880
McKinlay, J. M	New York City	Dec. 4, 1879
Nones, J. B	New York City	Feb. 14, 1880
Nettleton, Charles	New York City	March 17, 1880
Banks, H. C	New York City	July 14, 1880
Burke, F. P	New York City	Nov. 11, 1880
Colles, George Wetmore	New York City	Sept. 1, 1881
Doty, Spencer C	New York City	May 28, 1881
Dewey, F Henry	New York City	Aug. 18, 1881
Morgan, R. M	New York City	Jan. 31, 1881
Murden, S. A	New York City	July 25, 1881
Rosemon, Vincent	New York City	April 20, 1881
Ward, Thomas F	New York City	June 30, 1881
Smith, Isaac S	New York City	Aug. 15, 1881
Clarke, Edwin C	New York City	Nov. 30, 1881
Jaques, George R	New York City	Nov. 14, 1881
Thomas, Wm. M	New York City	Nov. 14, 1881
Atkinson, E. M	New York City	Feb. 3, 1882
Anderson, A. C	New York City	Feb. 21, 1882
Folsom, Thos. W	New York City	Jan. 31, 1882
Bruno, Richard M	New York City	May 1, 1882
Hillery, Jno. A	New York City	May 19, 1882
Clarkson, Wm. H	New York City	July 21, 1882
Adams, C. H	New York City	Aug. 7, 1882
Dickson, H. E	New York City	Aug. 1, 1882
Kingsley, Geo P	Orange	Aug. 12, 1882
Viele, Sheldon T	Buffalo	Aug. 23, 1882
Corey, E. F	New York City	Oct. 15, 1882
Pierce, Geo. R	New York City	Oct. 19, 1882

Resident in Ohio.

Carpenter, Samuel S	Cincinnati	March 3, 1880

Resident in Oregon.

NAME.	RESIDENCE.	Date of Appointment.
Pitt, B. D	Portland	July 26, 1881
White, E. D	Portland	Nov. 30, 1881

Resident in Pennsylvania.

Wheeler, J. H	Philadelphia	May 1, 1881
Baily, Julius A	Philadelphia	June 18. 1881
Crowe, Jones	Philadelphia	March 17, 1880
Diver, J. P	Philadelphia	Jan. 8, 1880
Hinchman, C. A	Philadelphia	Feb. 20, 1880
Taylor, S	Philadelphia	March 29, 1880
Hunt, F. J	Philadelphia	Oct. 18, 1880
Hoffman, Edward F	Philadelphia	June 15, 1881
Sparhawk, John	Philadelphia	April 1, 1881
Robb, W. F	Pittsburgh	July 5, 1881
Colton, J. Milton	Philadelphia	Dec. 20, 1881
Chauncey, Charles	Philadelphia	Dec. 26, 1881
Frankish, Jr. Joseph	Philadelphia	April 2, 1882
Child, Jr. R. S	Philadelphia	April 13, 1882
Tener, Kinley, J	Philadelphia	May 2, 1882

Resident in Rhode Island.

Addeman, J. M	Providence	Nov. 22, 1881

Resident in Wisconsin.

Donaldson, E. N	La Crosse	Aug. 28, 1882

Resident in West Virginia.

Stalnaker, R	Wheeling	Dec. 5, 1881

LIST OF COMMISSIONERS

FOR OTHER STATES, RESIDING IN MINNESOTA, TO TAKE ACKNOWLEDGMENTS, ETC., IN COMMISSION, DECEMBER 1, 1882.

Alabama.

NAME OF COMMISSIONER.	RESIDENCE.	DATE OF APPOINTMENT.
Frank H. Carleton............	Minneapolis.................	Nov. 3, 1881

Arizona.

Frank H. Carleton............	Minneapolis.................	Nov. 15, 1881

California.

Frank H. Carleton............	Minneapolis.................	Nov. 2, 1881

Connecticut.

Frank H. Carleton............	Minneapolis.................	Nov. 5, 1881

Dakota.

Frank H. Carleton..	Minneapolis.................	Dec. 7, 1881

Florida.

Frank H. Carleton............	Minneapolis.................	Dec. 10, 1881

Georgia.

Charles McC. Reeve...........	Minneapolis................	April 6, 1872

Indiana.

Frank H. Carleton............	Minneapolis.................	Nov. 21, 1881

Louisiana.

NAME OF COMMISSIONER.	RESIDENCE.	Date of Appointment.
Frank H. Carleton	Minneapolis	Nov. 30, 1881
Charles McC. Reeve	Minneapolis	April 5, 1872

Maine.

Charles McC. Reeve	Minneapolis	June 2, 1872
Frank H. Carleton	Minneapolis	Nov. 27, 1881

Michigan.

Henry F. Thompson	Duluth	March 20, 1880

Mississippi.

Frank H. Carleton	Minneapolis	Nov. 21, 1881.

Missouri.

Charles McC Reeve	Minneapolis	Feb. 29, 1872

Montana.

Frank H. Carleton	Minneapolis	Dec. 12, 1881

New Jersey

Frank H. Carleton	St. Paul	Jan. 17, 1882

New Mexico.

Frank H. Carleton	Minneapolis	Nov. 24, 1881

New York.

Frank H. Carleton	Minneapolis	Nov. 3, 1881
Thomson, Henry F	Duluth	March 25, 1880
Joseph Lewis	St. Paul	July 14, 1880
Joseph Kling	St. Paul	Jan. 5, 1881
I. F. A. Stoddart	St. Paul	Jan. 28, 1881
Charles McC Reeve	Minneapolis	May 2, 1881
Wm. J. Parsons	St. Paul	Dec. 16, 1879

North Carolina.

Frank H. Carleton	Minneapolis	Nov. 11, 1881

Ohio.

NAME OF COMMISSIONER.	RESIDENCE.	Date of Appointment.
Frank H. Carleton	Minneapolis	Nov. 26, 1881

Oregon.

Frank H. Carleton	Minneapolis	Nov. 22, 1881

Pennsylvania.

Frank H. Carleton	Minneapolis	Dec. 8, 1881

Rhode Island.

Frank H. Carleton	Minneapolis	Nov. 3, 1881

South Carolina.

Frank H. Carleton	Minneapolis	Dec. 6, 1881

Tennessee.

Charles McC. Reeve	Minneapolis	April 5, 1872

Texas.

Frank H. Carleton	Minneapolis	Nov. 7, 1881

Vermont.

Frank H. Carleton	Minneapolis	Nov. 18, 1881

West Virginia.

Frank H. Carleton	Minneapolis	Nov. 25, 1881

Wisconsin.

David M. Woodbury	Taylor's Falls	Aug. 30, 1880

Wyoming.

Frank H. Carleton	Minneapolis	Nov. 7, 1881

STATEMENT

OF THE CONDITION OF THE STATE TREASURY AS FOUND BY THE BOARD OF AUDITORS, GOVERNOR HUBBARD, ATTORNEY GENERAL HAHN, AND SECRETARY OF STATE, VON BAUMBACH, ON AN EXAMINATION MADE DECEMBER 1ST, 1882:

	DR.	CR.
Revenue Fund (overdrawn)	$142,810 36	$
State Institutions Fund		20,246 91
Interest Fund		6,818 17
Sinking Fund		582 31
Seed Grain Sinking Fund, 1878		800 85
Permanent School Fund		104,172 54
General School Fund		18,657 27
Permanent University Fund		16,003 11
Swamp Land Fund		2,013 68
General University Fund		12,499 98
Internal Improvement Fund		10,653 88
Internal Improvement Land Fund		65,910 32
Forestry		25,686 10
School Text Book Fund		1,863 82
Totals		$285,908 94
Deduct Revenue Fund overdrawn		142,810 36
Actual amount in Treasury		$143,098 58
Deposited as follows:		
In First National Bank	41,783 01	
In Second National Bank	5,763 90	
In Merchants' National Bank	46,153 77	
In German American Bank	11,320 28	
In Dawson & Co's Bank	38,077 62	
Total	$143,098 58	

Bonds in Trust Funds.

BELONGING TO PERMANENT SCHOOL FUND.

Minnesota 7 per cents, issue 1873	$25,000 00
Minnesota 6 per cents, issue 1878	61,000 00
Minnesota 4½ per cents, issue 1881	1,033,000 00
Missouri 6 per cents	868,000 00
United States 6 per cent. currency	279,000 00
Total in fund	$2.286,000 00

BELONGING TO PERMANENT UNIVERSITY FUND.

Minnesota 4½ per cents, issue 1881	$241,000 00

BELONGING TO INTERNAL IMPROVEMENT LAND FUND.

Minnesota 4½ per cents, issue 1881	322,000 00

The Board of Auditors of the State Treasury met at the office of the State Treasurer and examined the accounts, books, bonds and vouchers of the Treasurer, and ascertained the kind, descriptions and amounts of funds in the Treasury, and certify that the foregoing statement is the result of said examination.

L. F. HUBBARD, Governor.
W. J. HAHN, Attorney General.
FRED VON BAUMBACH, Secretary of State.

LIST OF NAMES OF CONVICTS

Released from Prison by virtue of Pardons issued during the year ending November 30, 1882.

NAME.	Where Convicted.	Date of Sentence.	Term of Sentence.	Crime.	Date of Pardon.	By whom Pardoned	Sentence would have expired.
1. Thomas Marshal..	Stearns Co..	July 11, 1879.	3 years.... ...	Burglary........	Dec. 15, 1881.	Gov. J. S. Pillsbury.	Jan. 23, 1882.
2. Charles R. Mims .	McLeod Co........	Nov. 20, 1879.	4 years........	Embezzlement.............. .	Dec. 29, 1881.	Gov. J. S. Pillsbury.	Mar. 30, 1883.
3. Stephen Smith....	Ramsey Co........	Mar. 10, 1877.	8 years........	Assault, intent to commit rape.	Jan. 2, 1882.	Gov. J. S. Pillsbury.	Nov. 15, 1883.
4. A. W. Eckhart....	Hennepin Co......	Feb. 22, 1881	2 years........	Embezzlement...........	Jan. 7, 1882	Gov. J. S. Pillsbury.	Oct. 27, 1882.
5. Wm. H. Measor...	Faribault Co......	June 21, 1878.	7 years........	Burglary...	Jan. 7, 1882	Gov. J. S. Pillsbury.	Apr. 26, 1884.
6. Edgar Deney	U. S. Dist. Court..	June 11, 1880	4 years........	Passing counterfeit silver coin.	Feb. 5, 1882.	President Arthur...	Oct. 16, 1883.
7. John Kinney......	Hennepin Co......	Nov. 2, 1881	2 years........	Larceny from the person.......	April 4, 1882	Gov. L. F. Hubbard.	May 7, 1883.
8. James Bailey......	Stearns Co........	June 16, 1879.	6 years........	Burglary.........	April 4, 1882.	Gov. L. F. Hubbard.	June 26, 1884.
9. John W. Barker..	Olmsted Co.	May 21, 1881.	2 years..	Assault, with intent to do great bodily harm................	July 22, 1882.	Gov. L. F. Hubbard.	Jan. 26, 1883.
10. Austin Lobdell....	U. S. Dist. Court..	June 6, 1882.	1 year.........	Robbing United States mails...	Oct. 17, 1882.	President Arthur...	Apr. 11, 1883.

I hereby certify that the above is a correct copy of the records.

J. A. REED, Warden.

REPORT OF INSPECTOR OF OILS.

OFFICE OF THE STATE INSPECTOR,
OF ILLUMINATING OILS,
ST. PAUL, MINN., DEC. 1, 1882.

Hon. Fred von Baumbach, Secretary of State:

SIR: I have the honor to submit to you herewith, as by law required, a report containing a synopsis of the business of this office for the year ending November 30, 1882.

My report shows in detail the number of barrels approved and the number rejected, and it also indicates the counties in which the inspection was made.

To suit the convenience of dealers and to insure entire and easy obedience to the law, I have, during the year, commissioned forty-one deputy inspectors residing at or near as many different distributing points.

The illuminating quality of the oil used in this State, during the year has been fully up to the standard of former years. There has been no serious disaster during the year traceable to the use of unsafe and uninspected oils. This experience of Minnesota, when compared with that of some of our sister states, has been a noticeable exception.

It again fully vindicates the wisdom there is in a thorough enforcement of our inspection laws. Quite a large number of the merchants in the smaller towns have imported their oils direct, for the first time during the past year, which accounts for the number of deputies appointed, and it has required constant diligence and attention to secure a strict and impartial administration of the law.

The dealers have been kept fully informed of its requirements, and I have during the year, as heretofore, received the hearty co-operation of those dealing most largely in illuminating oils.

Very respectfully,
J. K. HOFFMAN,
State Inspector of Oils.

NAMES AND RESIDENCE OF DEALERS AND NUMBER OF BARRELS AND GALLONS OIL APPROVED.

Date.	For whom Inspected.	Residence.	No. bbls. Approved.	No. gals. Approved.
1881 Dec. 1st...	Sundry persons...	St. Paul and Minneapolis	4,643	
“ ...	“ “	Winona county	563	
“ ...	“ “	Goodhue “	299	
“ ...	“ “	Dakota “	263	
“ ...	“ “	Washington “	152	
“ ..	“ “	Faribault and Martin counties	286	
“ ...	“ “	Olmsted county	261	
“ ...	“ “	Steele “	199	
“ ...	“ “	Blue Earth “	291	
“ ...	“ “	Freeborn “	208	
“ ..	“ “	Brown “	150	
“ ...	“ “	Lyon “	46	
1882	“ “			
Jan. 1st...	“ “	St. Paul and Minneapolis	2,902	
“ ...	“ “	Winona county	302	
“ ...	“ “	Wabasha “	67	
“ ...	“ “	Olmsted “	289	
“ ...	“ “	Dakota “	411	
“ ...	“ “	Blue Earth “	338	
“ ...	“ “	Dodge “	84	
“ ...	“ “	Goodhue “	102	
“ ...	“ “	Freeborn “	198	
“ ...	“ “	Washington “	79	
“ ...	“ “	Murray “	50	
“ ...	“ “	Rock “	50	
Feb. 1st...	“ “	St. Paul and Minneapolis	2,000	
“ ...	“ “	Brown county	150	
“ ...	“ “	Olmsted “	222	
“ ...	“ “	Blue Earth “	90	
“ ...	“ “	Washington “	50	
“ ...	“ “	Wabasha “	104	
“ ...	“ “	Goodhue “	290	
“ ...	“ “	Steele “	150	
“ ...	“ “	Dodge “	153	
“ ...	“ “	Winona “	161	
“ ...	“ “	Pipestone “	100	
Mar. 1st...	“ “	St. Paul and Minneapolis	2,627	
“ ...	“ “	Washington county	50	
“ ...	“ “	Steele “	100	
“ ..	“ “	Olmsted “	50	
“ ...	“ “	Faribault and Martin counties	193	
“ ...	“ “	Wabasha county	99	
“ ...	“ “	Freeborn “	50	
“ ...	“ “	Dodge “	114	
“ ...	“ “	Winona “	42	
“ ...	“ “	Blue Earth “	150	
“ ...	“ “	Polk “	50	
“ ...	“ “	Clay “	50	
April 1st...	“ “	St. Paul and Minneapolis	1,090	
“ ...	“ “	Brown county	50	
“ ...	“ “	Meeker “	50	
“ ...	“ “	Scott “	104	
“ ...	“ “	Goodhue “	18	
“ ...	“ “	Olmsted “	170	
“ ...	“ “	Blue Earth “	172	
“ ...	“ “	Houston “	291	
“ ...	“ “	Winona “	91	
May 1st...	“ “	St. Paul and Minneapolis	1,750	
“ ...	“ “	Houston county	164	
“ ...	“ “	Olmsted “	208	
“ ...	“ “	Steele “	50	
“ ...	“ “	Washington “	162	
“ ...	“ “	Rice “	183	
“ ...	“ “	Scott “	100	
“ ...	“ “	Freeborn “	150	
“ ...	“ “	Winona “	45	
“ ...	“ “	Goodhue “	14	
“ ...	“ “	Blue Earth “	50	
“ ...	“ “	Kittson “	50	
“ ...	“ “	Clay “	100	

NAMES AND RESIDENCE OF DEALERS AND NUMBER OF BARRELS AND GALLONS OIL APPROVED.—Continued.

Date.	For whom Inspected.	Residence.	No. bbls. Approved.	No. gals. Approved.
1882 June 1st...	Sundry persons. .	St. Paul and Minneapolis..........	1,870	....
" ...	" "	Lyon county..........................	50	....
" ...	" "	Murray "	50	....
" ...	" "	Blue Earth county............. ...	190	....
" ...	" "	St. Louis "	100	....
" ...	" "	Brown "	50	....
" ..	" "	Dodge "	100	....
" ...	" "	Washington "	50	....
" ..	" "	Meeker "	100	....
" ...	" "	Dakota "	150	....
" ...	" "	Olmsted "	263	....
" ...	" "	Faribault and Martin counties....	251	....
" ...	" "	Polk county..........................	50	....
" ...	" "	Redwood "	100	....
July 1st...	" "	St. Paul and Minneapolis..........	1,710	....
" ...	" "	Brown county.......................	54	....
" ...	" "	Washington "	50	....
" ..	" "	Olmsted "	56	....
" ...	" "	Steele "	100	....
" ...	" "	Blue Earth "	50	....
" ...	" "	Scott "	50	....
" ...	" "	Goodhue "	200	....
" ...	" "	Freeborn "	155	....
" ...	" "	Houston "	231	....
" ..	" "	Meeker "	45	....
" ...	" "	Rock "	91	....
" ...	" "	Rice "	84	....
" ...	" "	Pipe Stone "	50	....
" ...	" "	Kittson "	50	....
Aug. 1st...	" "	St. Paul and Minneapolis..........	2,295	....
" ...	" "	St. Louis county.....................	350	....
" ...	" "	Dodge "	51	....
" ...	" "	Wabasha "	157	....
" ...	" "	Goodhue "	108	....
" ...	" "	Winona "	320	....
" ...	" "	Murray "	100	....
" ...	" "	Washington "	100	....
" ...	" "	Faribault and Martin counties...	291	....
" ...	" "	Steele county........	50	....
" ...	" "	Olmsted "	100	....
" ...	" "	Freeborn "	50	....
" ...	" "	Swift "	90	....
Sept. 1st...	" "	St. Paul and Minneapolis.	3,258	....
" ...	" "	Nicollet county.....................	90	....
" ...	" "	St. Louis "	1,402	....
" ...	" "	Winona "	391	....
" ...	" "	Dodge "	150	....
" ...	" "	Wabasha "	50	....
" ...	" "	Goodhue "	130	....
" ...	" "	Houston "	90	....
" ...	" "	Olmsted "	188	....
" ...	" "	Clay "	50	....
" ...	" "	Kittson "	50	....
" ...	" "	Becker "	140	....
" ...	" "	Crow Wing "	215	....
" ...	" "	Rock "	50	....
" ...	" "	Jackson "	100	....
" ...	" "	Redwood "	140	....
" ...	" "	Brown "	52	....
" ...	" "	Nobles "	50	....
" ...	" "	Lyon "	50	....
" ...	" "	Blue Earth "	206	....
Oct. 1st...	" "	St. Paul and Minneapolis.........	4,092	....
" ...	" "	Wabasha county...	100	....
" ...	" "	Washington "	150	....
" 8..	" "	McLeod "	200	....
" ...	" "	LeSueur "	190	....
"	" "	Scott "	100	....
" ...	" "	Meeker "	50	....

NAMES AND RESIDENCE OF DEALERS AND NUMBER OF BARRELS AND GALLONS OIL APPROVED.

Date.	For whom Inspected.	Residence.	No. bbls. Approved.	No. gals. Approved.
1881				
Dec. 1st...	Sundry persons...	St. Paul and Minneapolis........	4,643	....
" ...	" "	Winona county.............. ..	563	....
" ...	" "	Goodhue "	299	....
" ...	" "	Dakota "	283	....
" ...	" "	Washington "	152	....
" ..	" "	Faribault and Martin counties....	286	....
" ...	" "	Olmsted county..................	261	....
" ...	" "	Steele "	199	....
" ...	" "	Blue Earth "	291	.. ..
" ...	" "	Freeborn "	208	....
" ..	" "	Brown "	150	. . ..
" ...	" "	Lyon "	46	....
1882	" "			
Jan. 1st...	" "	St. Paul and Minneapolis.........	2,902	....
" ...	" "	Winona county.................	302	....
" ...	" "	Wabasha "	67	. ...
" ...	" "	Olmsted "	289	....
" ...	" "	Dakota "	411	....
" ...	" "	Blue Earth "	338	....
" ...	" "	Dodge "	84	....
" ...	" "	Goodhue "	102	....
" ...	" "	Freeborn "	198	....
" ...	" "	Washington "	79	....
" ...	" "	Murray "	50	....
" ...	" "	Rock "	50	....
Feb. 1st...	" "	St. Paul and Minneapolis..... ...	2,000	....
" ...	" "	Brown county..........	150	....
" ...	" "	Olmsted "	222	....
" ...	" "	Blue Earth "	90	....
" ...	" "	Washington "	50	....
" ...	" "	Wabasha "	104	....
" ...	" "	Goodhue "	290	....
" ...	" "	Steele "	150	....
" ...	" "	Dodge "	153	....
" ...	" "	Winona "	161	....
" ...	" "	Pipestone "	100	....
Mar. 1st...	" "	St. Paul and Minneapolis.... ...	2,627	....
" ...	" "	Washington county..............	50	....
" ...	" "	Steele "	100	....
" ..	" "	Olmsted "	50	....
" ...	" "	Faribault and Martin counties ..	193	....
" ...	" "	Wabasha county	99	....
" ...	" "	Freeborn "	50	....
" ...	" "	Dodge "	114	....
" ...	" "	Winona "	42	....
" ...	" "	Blue Earth "	150	....
" ...	" "	Polk "	50	....
" ...	" "	Clay "	50	....
April 1st...	" "	St. Paul and Minneapolis	1,090	....
" ...	" "	Brown county......	50	....
" ...	" "	Meeker "	50	....
" ...	" "	Scott "	104	....
" ...	" "	Goodhue "	18	....
" ...	" "	Olmsted "	170	....
" ...	" "	Blue Earth "	172	....
" ...	" "	Houston "	291	....
" ...	" "	Winona "	91	... .
May 1st...	" "	St. Paul and Minneapolis	1,750	....
" ...	" "	Houston county	164	....
" ...	" "	Olmsted "	208	....
" ...	" "	Steele "	50	....
" ...	" "	Washington "	162	....
" ...	" "	Rice "	183	....
" ...	" "	Scott "	100	. ...
" ...	" "	Freeborn "	150	....
" ...	" "	Winona "	45	....
" ...	" "	Goodhue "	14	....
" ...	" "	Blue Earth "	50	... .
" ...	" "	Kittson "	50	....
" ...	" "	Clay "	100	....

NAMES AND RESIDENCE OF DEALERS AND NUMBER OF BARRELS AND GALLONS OIL APPROVED.—Continued.

Date.	For whom Inspected.	Residence.	No. bbls. Approved.	No. gals. Approved.
1882 June 1st	Sundry persons.	St. Paul and Minneapolis	1,870	
"	" "	Lyon county	50	
"	" "	Murray "	50	
"	" "	Blue Earth county	190	
"	" "	St. Louis "	100	
"	" "	Brown "	50	
"	" "	Dodge "	100	
"	" "	Washington "	50	
"	" "	Meeker "	100	
"	" "	Dakota "	150	
"	" "	Olmsted "	263	
"	" "	Faribault and Martin counties	251	
"	" "	Polk county	50	
"	" "	Redwood "	100	
July 1st	" "	St. Paul and Minneapolis	1,710	
"	" "	Brown county	54	
"	" "	Washington "	50	
"	" "	Olmsted "	56	
"	" "	Steele "	100	
"	" "	Blue Earth "	50	
"	" "	Scott "	50	
"	" "	Goodhue "	200	
"	" "	Freeborn "	155	
"	" "	Houston "	231	
"	" "	Meeker "	45	
"	" "	Rock "	91	
"	" "	Rice "	84	
"	" "	Pipe Stone "	50	
"	" "	Kittson "	50	
Aug. 1st	" "	St. Paul and Minneapolis	2,295	
"	" "	St. Louis county	350	
"	" "	Dodge "	51	
"	" "	Wabasha "	157	
"	" "	Goodhue "	108	
"	" "	Winona "	320	
"	" "	Murray "	100	
"	" "	Washington "	100	
"	" "	Faribault and Martin counties	291	
"	" "	Steele county	50	
"	" "	Olmsted "	100	
"	" "	Freeborn "	50	
"	" "	Swift "	90	
Sept. 1st	" "	St. Paul and Minneapolis	3,258	
"	" "	Nicollet county	90	
"	" "	St. Louis "	1,402	
"	" "	Winona "	391	
"	" "	Dodge "	150	
"	" "	Wabasha "	50	
"	" "	Goodhue "	130	
"	" "	Houston "	90	
"	" "	Olmsted "	188	
"	" "	Clay "	50	
"	" "	Kittson "	50	
"	" "	Becker "	140	
"	" "	Crow Wing "	215	
"	" "	Rock "	50	
"	" "	Jackson "	100	
"	" "	Redwood "	140	
"	" "	Brown "	52	
"	" "	Nobles "	50	
"	" "	Lyon "	50	
"	" "	Blue Earth "	200	
Oct. 1st	" "	St. Paul and Minneapolis	4,092	
"	" "	Wabasha county	100	
"	" "	Washington "	150	
" 8	" "	McLeod "	200	
"	" "	LeSueur "	190	
"	" "	Scott "	100	
"	" "	Meeker "	50	

NAMES AND RESIDENCE OF DEALERS AND NUMBER OF BARRELS AND GALLONS OIL APPROVED—Concluded.

Date.	For whom Inspected.	Residence.	No. bbls. Approved.	No. gals. Approved.
Oct. 1st	Sundry persons	Steele county	460	....
"	" "	Goodhue "	213	....
"	" "	Kandiyohi county	200	....
"	" "	Brown "	164	....
"	" "	Polk "	50	....
"	" "	Rice "	290	....
"	" "	St. Louis "	1,323	....
"	" "	Yellow Medicine county	50	....
"	" "	Benton county	50	....
"	" "	Lyon "	50	....
"	" "	Olmsted "	271	....
"	" "	Dakota "	421	....
"	" "	Winona "	629	....
Nov. 1st	" "	St. Paul and Minneapolis	2,253	....
"	" "	Scott county	100	....
"	" "	Le Sueur "	150	....
"	" "	Brown "	50	....
"	" "	Blue Earth county	900	....
"	" "	Dakota "	321	....
"	" "	Washington "	53	....
"	" "	Winona "	365	....
"	" "	Waseca "	316	....
"	" "	Dodge "	90	....
"	" "	Nicollet "	193	....
"	" "	Fillmore "	464	....
"	" "	Mower "	599	....
"	" "	Wright "	350	....
"	" "	St. Louis "	2,044	....
"	" "	Steele "	80	....
"	" "	Olmsted "	268	....
"	" "	Goodhue "	200	....
"	" "	Houston "	220	....
			58,947	2,947,350

NUMBER OF BARRELS AND GALLONS OF UNSAFE OILS, TOGETHER WITH THE NAMES AND RESIDENCE OF DEALERS, SHIPPERS, BRAND AND FLASHING TEST.

Date.	Dealer.	Residence.	No. of Barrels Unsafe.	No. of Gallons Unsafe.	Shipper.	Brand.	Flashing Test.
May 10, 1882	Standard Oil Co	Minnneapolis	2	100	Standard Oil Co.	Standard	95 degrees.
July 9, 1882	Anchor Manufac'ing Co.	St. Paul	1	50	Anchor Man'f'g Co.	Unknown	90 degrees.
Sept. 10, 1882	Knapp, Stout & Co	Reed's Landing	8	400	P. C. Hanford	P. C. Hanford	106 degrees.
October 11, 1882.	J. Schupp & Son	Stillwater	12	600	Unknown	Unknown	102 degrees.
			23	1,150			

RETURNS ON STATIONERY

RECEIVED AND ISSUED BY THE SECRETARY OF STATE DURING THE YEAR ENDING NOVEMBER 30, 1882.

	PAPER.						ENVELOPES.					
	Legal cap. Reams	Leter heads. Reams.	American linen. Reams.	Note heads. Reams.	Drawing. Yards.	Bank note. Patch	11 white. M.	10 white. M.	9 white. M.	6½ white. M.	10 Manilla. M.	6½ Manilla. M.
On hand, 1881	4	1	....	3	....	. ...	1	8½	1	2	....	....
Received on contract	37	19	14	31	2	1,000	5½	23	15	30	15	10
Total	41	20	14	34	2	1,000	6½	31½	16	32	15	10
Governor	1	....	1	3	....	....	....	2	1	3½	....	....
Sec'y of State and Com. of Statistics	11	....	2	3	....	.....	½	½	3	4½	4	½
State Auditor	1	2	4	2	2	1,000	....	4½	1	1	1½	....
State Treasurer	....	2	1	1½	....	.....	....	2½	....	....	....	....
Attorney-General	....	....	...	....	....	.....	....	½	...	1	....	....
Adjutant-General	1¾	2	1	1½	....	.....	....	1	5½	5½	....	....
Public Examiner	1	....	....	....	....	.....	....	....	....	....	....	....
Superintendent Public Instruction	2	3	2½	4½	....	.....	.. .	½	1½	6	½	....
Insurance Commissioner	1	....	1	1½	....	.....	....	4½	....	1½	....	....
Librarian	2	3	....	1½	....	.....	....	½	....	1	....	....
Supreme Court	2	....	1½	2½	...	.....	....	....	. ..	....	....	....
Railroad Commissioner	1	2	....	2	....	.....	½	....	1	2½	....	....
Historical Society	....	....	....	1	....	.....	....	....	....	½	....	....
Oil Inspector	¼	1	....	1½	....	.....	....	....	....	....	....	....
Board of Immigration	1	....	....	....	....	.....	....	....	....	....	....	....
Total	25	15	14	25½	2	1,000	1	16½	13	27	6	½
On hand	16	5	....	8½	....	.....	5½	15	3	5	9	9½
Total	41	20	14	34	2	1,000	6½	31½	16	32	15	10

RETURNS ON STATIONERY.—Continued.

	Paper Weights.	Envelope Holders.	INK.						MUCILAGE.	
			Black.		Crimson.	Green.	Copying, Quarts.	Stands.	Quarts.	Reservoirs.
			Quarts.	Half Pints.						
On hand, 1881	...	....	3	....	11	....	....	10	6	2
Received on contract	1	1	96	61	48	6	12	14	20	12
Total	1	1	99	61	59	6	12	24	26	14
Governor	....	....	5	2	7	1	....	....	3	2
Secretary of State and Com. of Statistics	1	....	6	5	10	3	1	....	7	2
State Auditor	....	....	3	4	4	2	1	2	2	1
State Treasurer	....	....	4	1	3	....	1	...	2	1
Attorney General	....	....	....	1	....	....	1	....	......	......
Adjutant General	....	....	7	....	3	....	1	6	1	1
Public Examiner	....	....	2	3	2	....	....	1	1	1
Superintendent Public Instruction	...	....	2	6	4	....	3	6	3	1
Insurance Commissioner	....	1	2	2	2	....	1	1	1	1
Librarian	....	....	1	1	2	....	....	....	1	......
Supreme Court	....	....	6	5	10	....	....	2	2	1
Railroad Commissioner	....	....	2	1	1	....	....	....	3	2
Historical Society	....	....	1	....	1	....	....	....	......	......
Oil Inspector	....	....	....	....	5	....	....	....	......	......
Board of Immigration	....	....	1	....	2	....	2	....	......	1
Total	1	1	42	31	56	6	11	18	26	14
On hand	....	....	57	30	3	....	1	6	......	.....
Total	1	1	99	61	59	6	12	24	26	14

RETURNS ON STATIONERY.—CONTINUED.

		PENCILS.				PENS.		PEN-HOLD'S		PAPER FASTENERS	
	Pen-Racks.	Automatic.	Red and Blue.	Rubber tipped. doz	Plain. doz	Steel.	Quills.	Common. doz	Rubber.	McGill's.	Wire.
On hand, 1881	....	....	5	48	60	3	....	13	....	400	.....
Received on contract	2	24	72	....	68	145	20	12	48	12,000	3,000
Total	2	24	77	48	128	148	20	25	48	12,400	3,000
Governor	....	2	2	...	6	4	2	½	2	......	......
Sec. of State and Com. of Statistics	1	5	12	....	19	14	4	....	8	2,900	1,000
State Auditor	1	3	12	....	6	8	2	....	6	500	......
State Treasurer	....	2	3	....	1	8	1	½	5	.. .	......
Attorney General	....	2	...	....	1	1	....	....	....	......	......
Adjutant General	....	1	6	...	4	8	....	2	2	200	......
Public Examiner	....	....	5	....	3	2	....	....	2	200	......
Superintendent Public Instruction	....	1	8	1	20	4	2	....	6	1,500	......
Insurance Commissioner	....	2	5	....	18	5	1	...	2	......	......
Librarian	....	....	2	....	8	4	....	2	2	......	......
Supreme Court	....	5	10	41	6	15	6	6	10	2,800	1,000
Railroad Commissioner	....	1	6	1	10	4	....	....	2	......	......
Historical Society	....	....	....	..	2	2	...	....	....	......	......
Oil Inspector	....	....	....	....	2	1	....	....	...	....	......
Board of Immigration	...	....	1	...	2	1	2	...	1	... ..	......
Total	2	24	72	43	108	81	20	11	48	8,100	2,000
On hand	...	....	5	5	20	67	...	14	....	4,300	1,000
Total	2	24	77	48	128	148	20	25	48	12,400	3,000

RETURNS ON STATIONERY—Continued.

	ERASERS.		PAPER PUNCHERS.	RUBBER BAND.			
	Ink and Pencil. Doz.	Steel.	McGill's.	000½ Gross.	0000½ Gross.	31½ Gross.	11. Gross.
On hand 1881	2			5		13	17
Received on contract	11½	61	12	10	5	50	54
Total	13½	61	12	15	5	63	71
Governor	1	4	1	1½	1	4	7
Sec'y of State and Com. of Statistics		5	3	1	2	14	17
State Auditor	2½	6	1	2		6	8
State Treasurer	½	2		1	½	2	5
Attorney General						1	1
Adjutant General		5	1	3	1	2	8
Public Examiner	½	2				1	
Superintendent of Public Instruc.	4	3		1		1	2
Insurance Commissioner		4				3	4
Librarian		1		1		1	
Supreme Court	3	12	4			25	15
Railroad Commissioner	2	3	1	1		1	2
Historical Society							
Oil Inspector						1	
Board of Immigration		1		1		1	2
Total	13½	48	11	12½	4½	63	71
On hand		13	1	2½	½		
Total	13½	61	12	15	5	63	71

RETURNS ON STATIONERY.—CONTINUED.

	BOOKS.						Scratch Blocks, dozens.	Ivory Folders.	Ruling Pens.	Rubber Rulers.	Shears.
	Record.	Letter Copy.	Blank.	Index.	Memorandum.	Scratch, dozens.					
On hand, 1881	.. .	....	....	....	18	....	2½	6	....	11	...
Received on contract	3	3	6	3	6	57⅔	30¼	36	2	24	24
Total	3	3	6	3	24	57⅔	32¾	42	2	35	....
Governor	....	....	4	....	5	4	3¼	3	.. .	4	4
Secretary of State and Com. of Statistics	1	....	1	2	5	10	5	5	....	3	2
State Auditor	....	1	....	....	2	5	5	4	1	6	3
State Treasurer	...	....	...	....	....	1	½	2	....	1	1
Attorney General	2	1	1	....	1	1½	1½	...	....	....	....
Adjutant General	....	....	...	1	1	5	1	2	....	5	3
Public Examiner	....	....	....	....	....	1	2	2	....	1	1
Superintendent Public Instruction	....	.. .	....	...	6	8	4½	2	1	1	3
Insurance Commissioner	....	1	....	...	1	3	3	2	.. .	1	1
Librarian	....	.. .	....	....	1	7	1	1	....	1	1
Supreme Court	....	....	....	....	2	8⅔	4	5	....	6	4
Railroad Commissioner	....	....	....	....	....	2	2	2	...	1	1
Historical Society	....	....	....	....	....	½	....	...	....	...	....
Oil Inspector	....	....	....	....	....	½	....	....	....	....	...
Board of Immigration	....	....	....	...	....	½	....	....	....	1	....
Total	3	3	6	3	24	57⅔	32¾	30	2	31	24
On hand	....	....	....	...	..	....	....	12	....	4	....
Total	3	3	6	3	24	57⅔	32¾	42	2	35	24

RETURNS OF STATIONERY.—Continued.

	SEALS.									
	Doz. Gold.	Doz. Red.	Fine Spur.	Doz Thumb Tacks.	Congr. Slides.	Cong. Ties Envelopes	Arm Rests.	Twine Holders.	Feather Dusters.	Letter Files.
On hand 1881	10	....	....	....	...	40	......	5	......	.....
Received on contract	11	1	1000	5½	300	126	1	......	4	1
Total	21	1	1000	5½	300	166	1	5	4	1
Governor	....	....	....	....	....	......	......	.....	2	......
Secretary of State and Com. of Statistics	7	....	....	..	....	......	......	......	......	......
State Auditor	6	1	1000	....	60	......	1	......	......	......
State Treasurer	....	....	....	....	....	......	......	...	......	......
Attorney General	....	....	....	....	..	......	......	......	......	1
Adjutant General	....	....	....	....	....	......	......	1	......	......
Public Examiner	....	....	....	....	....	......	......	......	......	......
Superintendent Public Instruction	....	....	....	5½	....	154	......	......	......	......
Insurance Commissioner	....	....	....	....	80	......	......	......	......	......
Librarian	..	..	....	....	....	......	......	......	......	......
Supreme Court	1	....	....	....	10	......	......	1	......	......
Railroad Commissioner	....	....	....	....	....	....	......	......	2	......
Historical Society	....	..	....	....	....	......	......	......	......	......
Oil Inspector	....	....	....	....	....	......	......	......	......	......
Board of Immigration	..	....	....	....	....	......	......	......	......	......
Total	14	1	1000	5½	150	......	1	2	4	1
On hand	7	...	....	....	150	12	......	3	......	......
Total	21	1	1000	5½	300	166	1	5	4	1

RETURNS ON STATIONERY—CONCLUDED.

	Cup and Sponge.	Brush.	Bowl.	Card Case.	Pyr. Pins.	Letter press and outfi	Pink Tape.	LEAD.		Sponges.	T. Square.	Angle.
								Black.	Copy.			
On hand 1881	....	....	....	....	....	....	....	....	....	....	....	....
Received on contract	7	1	1	1	84	1	48	18	24	6	1	1
Total	7	1	1	1	84	1	48	18	24	6	1	1
Governor	1	....	....	....	6	....	6	3	3	2	.	....
Sec. of State and Com. of Statistics	2	....	....	....	16	...	2	6	6	1	....	....
State Auditor	1	....	....	....	6	. ..	6	3	3	1	1	1
State Treasurer	1	....	....	....	6	....	2	3	3	1	....	....
Attorney General	....	...	....	..	1	....	....	....	...	....	...	....
Adjutant General	....	....	....	....	5	....	2	....	...	....	....	....
Public Examiner	....	....	....	....	2	....	1	....	..	...	....	....
Superintendent Public Instruction	....	....	....	1	5	....	3	....	....	...	....	....
Insurance Commissioner	2	1	1	....	4	....	3	...	....	1	....	....
Librarian	....	....	....	....	2	....	1	...	....	...	....	....
Supreme Court	....	....	....	....	22	....	2	3	9	...	...	....
Railroad Commissioner	....	....	....	....	6	1	2	....	....	....	...	....
Historical Society	....	....	....	....	1	...	....	...	....	. .	...	....
Oil Inspector	....	....	....	....	....	.. .	...	..	...	..	....	....
Board of Immigration	....	....	....	....	2	....	....	....	.	....	...	....
Total	7	1	1	1	84	1	30	18	24	6	1	1
On hand	...	. ..	....	. ..	....	....	18	....	...	...	....	....
Total	7	1	1	1	84	1	48	18	24	6	1	1

BIENNIAL REPORT

OF THE

ATTORNEY GENERAL

OF THE

STATE OF MINNESOTA,

FOR THE

Two Years Ending November 30, 1882,

TO THE GOVERNOR.

TRANSMITTED TO THE LEGISLATURE OF THE TWENTY-THIRD SESSION,
BEING THE SECOND BIENNIAL SESSION, 1883.

MINNEAPOLIS:
JOHNSON, SMITH & HARRISON,
1883.

REPORT.

STATE OF MINNESOTA
ATTORNEY GENERAL'S OFFICE,
DECEMBER 1, 1882.

His Excellency L. F. Hubbard, Governor of Minnesota:

SIR: I have the honor to submit herewith my biennial report of the official business transacted by the Attorney General since December 1, 1880.

My immediate predecessor, Hon. Chas. M. Start was, on March 11, 1881, appointed Judge of the Third Judicial District to succeed Hon. Wm. Mitchell who had been selected by Governor Pillsbury as one of the additional associate justices of the Supreme Court provided for by chapter 141 of General Laws, 1881. On the same day I received my commission as Attorney General and at once assumed the duties of that office. I was confronted at the very threshold of my official life by the grim spectre of the old State railroad bonds. The act passed at the regular session of the Legislature of 1881, for the adjustment of this matter, provided that the Judges of the Supreme Court, or in case they declined to serve, then an equal number of District Judges to be selected by the Governor should meet on March 22, 1881, to consider and determine the matters to be submitted to them as in that act provided.

Under the authority conferred on me by that law, my first official act in this matter was to retain on behalf of the State to assist me therein the Hon. Thomas Wilson, of Winona.

My long and intimate acquaintance with Judge Wilson, my knowledge of his pre-eminent legal ability and high standing as a citizen and a lawyer, together with his well known convictions on the questions at issue, naturally caused his selection. By reason of difficulties experienced by His Excellency Governor Pillsbury, in procuring the requsite number of judges to make up this tribunal, the matter rested in abeyance until July 26, 1881, at which time the Commission assembled at the Market House, St. Paul. Prior to that time, I also retained on behalf of the State, Hon. Daniel Buck, of Mankato.

The matters at issue were of such grave importance, my own convictions, as well as the opinions of my able associates of the unconstitutionally of this act of the Legislature, were so decided, that after mature reflection, we concluded to enter a plea in the first instance, to the jurisdiction of the tribunal and legality of its creation, intending, if such plea was overruled, to apply to the Supreme Court for a writ of prohibition and thereby obtain the decision of the Court of last resort on these questions. Such a plea was accordingly prepared and filed. An order to show cause why a writ of prohibition should not be granted against the tribunal, issued from the Supreme Court at the instance of Hon. D. A. Secombe, of Minneapolis, was served on the members of the commission before the hearing on this plea was had, and the whole matter was thereby transferred to that court, where on my motion the Attorney General was substituted for Mr. Secombe, as relator. Being thus before the highest court in our State, I deemed it my duty to present and argue, not only the questions presented in our plea, but the graver and far more important question of the constitutionality of the constitutional amendment of 1860. The validity of this amendment had been seriously questioned, and, as the opportunity was then presented of having that question definitely and finally settled, it was included in the points presented to that court for determination. Rarely is there submitted to a court of last resort any more important or more delicate civil questions than were submitted in this proceeding. The case was exhaustively argued. In speaking of the manner of its presentation, the Supreme Court in its decision says:

"The discussion took a very wide range and occupied an unusual time, though not more than was profitably employed, and disclosed the most thorough and minute research and investigation. It has rarely been the good fortune of any court to have a cause before it so ably and exhaustively presented by counsel as has this been."

For the strong presentation of the issues on behalf of the State, the credit is largely due to my associates, to whose learning, research and ability I desire thus publicly to bear testimony.

This law, as well as the amendment of 1860, was declared to be unconstitutional by the Supreme Court. Under the act passed at the extra session for the adjustment of the Minnesota State Railroad Bonds, the Attorney General was designated as one of the members of the board to consider the claims mentioned in section 4 of that act. As both the then Governor and State Auditor who composed the other members of such board have since retired, it may be well for me, in this report, to briefly summarize the labors and results of that body. We were in session for the purposes specified, from November 21st to December 30th, 1881, and heard and passed upon, as best we could, in the brief space allotted to us from the meagre and in many cases unsatisfactory evidence adduced, 286 claims of which number 101 were against the Cedar Valley Railroad, 139 were against the Transit Railroad, 14 were against the Southern Minnesota Railroad, and 32 were against the Minnesota & Pacific Railroad.

On these claims there were allowed the following amounts, viz.:

Transit Railroad	$147,213 20
Cedar Valley Railroad	148,208 68
Minnesota & Pacific Railroad	10,740 36
Southern Minnesota Railroad	1,795 12

In this connection and before calling your Excellency's attention to the character, condition and result of the other actions prosecuted and defended in behalf of the State during my incumbency of this office, I will speak of two other cases growing out of this old railroad bond matter.

On November 17, 1881, an action was commenced in the District Court of Hennepin county by Hon. D. A. Secombe against His Excellency, Governor Pillsbury, to restrain the issuance of the adjustment bonds provided for by chapter 1, of the General Laws of the extra session of 1881, and an injunction was issued by the Court Commissioner of that county and served on the Governor.

As our Supreme Court had so often and so emphatically held that the executive department was not amenable to the judicial department for its official acts, I advised the Governor to disregard the injunction as being utterly void. The District Court, when the case came before it, promptly dismissed the same. On January 16, 1882, a similar action, by the same person in the same court, was commenced against the State Treasurer to restrain the payment of the interest on the said adjustment bonds and an injunction prayed for, on the ground that the bond amendment of 1858 under which the original bonds were issued was unconstitutional. In view of the aforesaid decisions, I did not deem it necessary to appear in the case in the District Court. This case was also dismissed, but was taken by appeal to the Supreme Court. I there entered an appearance; the case was argued, and on June 8, 1882, a decision was rendered by the Supreme Court pronouncing that amendment to be valid. This last decision, I believe, finally disposes of all dispute over this vexed subject, and sets at rest forever one of the most embarrassing questions presented for determination in the history of our State.

On January 9, 1882, an action was commenced in the District Court of Ramsey County against the Governor and State Auditor by Guy D. Daley, et al., praying that the defendants be required to deliver to them one-sixth part of the bonds and money due and coming to McDonald and Graham under the provisions of section 3, of chapter 1, of General Laws of the extra session of 1881. I appeared for the defendants and moved to dismiss on the ground that the court had no jurisdiction over the defendants as State officers. Before a decision was announced, the plaintiff and McDonald and Graham amicably adjusted their differences and the case was dismissed.

Prior to the passage of the adjustment act, at the extra session, Hon. John B. Brisbin brought an action against several of the holders of the old railroad bonds and garnisheed the State Auditor. I appeared for that officer and again objected to the jurisdiction of the court. The question was argued and submitted and is still held under advisement by the court.

The question of the construction of the several acts of the Legislature providing for the payment of a *per centum* upon the gross earnings of the several railroads in the State in lieu of all taxation, is becoming an important one. Hitherto the roads have had the advantage of the State in this matter, but on account of the marvelous development of our industries and the wonderful growth of our population, and consequent vast increase in railroad earnings, that advantage has been very materially reduced. As a consequence, some of the companies are refusing to pay on items heretofore embraced among their gross earnings without objection. The St.Paul, Minneapolis & Manitoba Railroad Company having declined to pay the *per centum* upon the amount it receives from the Northern Pacific Company, viz.: $40,000 annually for the use of its tracks, depots and terminal facilities, under an agreement entered into between those companies, I instituted a suit in the District Court of Ramsey county, to recover such *per centum*. The facts were stipulated (there being no dispute as to them) and the legal questions involved were argued before Judge Simons, of that court. A decision having been rendered against the State, I took the case to the Supreme Court for review. It was submitted to that court at the present term, and is still pending and undecided.

The Northern Pacific Railroad Company having declined for the first time to pay 3 *per centum* of the amount of its gross earnings realized from the operation of its business between St. Paul and Sauk Rapids, over the line of the St. Paul, Minneapolis & Manitoba railroad under the aforesaid agreement, I commenced a suit against it in the same court to recover the amount claimed to be due the state on account of such earnings. The amount involved is 3 *per centum* of $415,567.68, amounting to $12,467.53. This action has not yet been tried.

In pursuance of the resolution passed by the House of Representatives at the regular session of 1881, I investigated the matter of the taxability of the railroad lands therein referred to. There being no doubt in my mind of the liability to taxation of the lands of the Southern Minnesota Railroad Company, so far as the lands of that company are included in the so-called Thompson trust, and the so-called 233 land trust certificates. I advised the State Auditor to have those lands placed upon the tax list, and I understand this has been done. In the other cases mentioned in that resolution, test suits have been instituted to determine the question, which suits are now pending.

Prior to my appointment a suit had been brought by my immediate predecessor against B. N. Johnson, of Otter Tail county, for the purpose of having a school land certificate held by him cancelled and annulled, on the ground that the same had been illegally issued, there having been no actual public sale as required by the constitution. The action was tried by me and a decree obtained in accordance with the prayer of the complaint. Upon the request of the County Attorney of Wright county, I appeared and assisted in the prosecution of the case of the State *vs.* Ohrliens. The defendants (father and son) were indicted for murder and were convicted of manslaughter in the second degree (which was all the State claimed at the close of the evidence) and sentenced to the state prison for four years.

At the request of the County Attorney of Crow Wing county, I appeared and assisted, as far as other imperative calls would permit, in the preparation of the cases of the State v. Taylor and ——.

Being unable, however, to remain during the entire trial, I secured the presence and assistance of John D. O'Brien, Esq., of St. Paul. The cases were skillfully tried and resulted in the conviction of both defendants of murder in the first degree. It was a dastardly, cold-blooded murder of an Indian, and the prompt, vigorous justice meted out to the perpetrators will doubtless exert a salutary influence over that lawless element which hangs on the verge of advancing civilization only to disfigure and disgrace it. To Mr. O'Brien, as well as to the County Attorney of that county great credit is due for this desirable consummation.

At the request of the State Auditor I assisted the County Attorney of Kandiyohi county in the prosecution of a large number of seed-grain tax cases before the District Court at Willmar. The cases are still undecided.

Upon a like request I took part in the argument of a number of tax cases before the District Court of Ramsey county. The cases arose under the Act of 1881 (ch. 135), providing for the sale of lands forfeited to the State. The proceedings for the enforcement of such taxes were held to have been irregular, but sustained as to nearly all the defendants who had interposed answers.

The following cases were argued by me on behalf of the State in the Supreme Court:

The State of Minnesota vs. H. Baumhager.

Indictment for embezzlement of public funds, as County Treasurer of Scott county. Appeal from judgment of District Court convicting defendant. The judgment was affirmed.

The State of Minnesota vs. John J. Ring.

Appeal from the judgment of the District Court of Scott county convicting the defendant of embezzlement as County Treasurer. Judgment affirmed.

The State of Minnesota vs. H. H. Wilson.

Indictment for forging deed of real estate. Appeal from judgment of District Court, Hennepin county. Judgment reversed.

The State of Minnesota vs. E. Benson.

Appeal from the District Court, Martin county. Conviction for removing baggage from hotel without paying for lodging. Judgment affirmed.

State of Minnesota vs. Charles Grear.

Indictment for assault with intent to do great bodily harm. Appeal from judgment of District Court, Hennepin county. Reversed and new trial granted.

The State of Minnesota vs. C. Kilty.

Indictment for obstructing railway. Certified from District Court of Washington county for opinion of Supreme Court on certain instructions given by the judge to the jury in the trial. Judgment of conviction affirmed.

The State of Minnesota vs Edward Lawlor.

Indictment for murder. Appeal from the judgment of District Court, Winona county. Judgment affirmed.

The State of Minnesota vs. B. J. Perry *et al.*

Appeal from an order for judgment of the District Court of Olmsted county entered on forfeited recognizance. Order affirmed.

The State of Minnesota vs. William Simpson.

Appeal from judgment of Municipal Court of the City of Minneapolis convicting defendant of assault and battery. Judgment affirmed.

The State of Minnesota vs. Charles Waholz.

Conviction for obstructing highway. Certified from District Court, Winona county, for opinion of Supreme Court on certain questions. Judgment reversed.

The State *ex rel.* vs. O. P. Whitcomb.

Order to show cause why a *mandamus* should not issue compelling respondent to issue a sale certificate. Order vacated.

The State of Minnesota, vs. Ben Langdon. Indictment for selling liquor without license. Certified by District Court of Nobles county, for opinion of Supreme Court on sufficiency of indictment and other questions. Judgment affirmed.

The State of Minnesota, vs. H. F. Heitsch.

Charged with selling liquor to an habitual drunkard after notice. Appeal from judgment of District Court of Otter Tail county. Judgment reversed.

State of Minnesota, vs. John Gray.

Indictment for obtaining money by means of "three card monte." The judgment of the District Court of Olmsted county convicting the defendant was affirmed.

State of Minnesota, vs. Delvin Cotton.

Charged with obstructing highway. Appeal from an order of the Municipal Court of Minneapolis, denying a motion for a new trial. Order reversed.

State of Minnesota, vs. Kitty Smith.

Indictment for keeping a house of ill fame. Appeal from judgment of conviction in the District Court of Ramsey county. Judgment affirmed.

State of Minnesota, vs. Nellie Otis.

Indictment for keeping a house of ill fame. Appeal from judgment of conviction in the District Court of Ramsey county. Judgment affirmed.

State of Minnesota, vs. Emma Lee.

Indictment for keeping a house of ill fame. Appeal from judgment of conviction in the District Court of Ramsey county. Judgment affirmed.

State of Minnesota, vs. Eli Small.

Indictment for manslaughter in fourth degree. Appeal from order of District Court of Hennepin county overruling demurrer to indictment. Order appealed from affirmed.

State of Minnesota, vs. Chas. Grear.

Indictment for assault with dangerous weapon. Appeal from judgment of conviction of District Court of Hennepin county. Judgment affirmed.

State of Minnesota, vs. Wm. McGinnis.

Convicted of selling liquor to a minor. Appeal from judgment of District Court, Rice county. Still pending.

State of Minnesota, vs. Wm. McGinnis.

Convicted of selling liquor to an habitual drunkard. Appeal from judgment of District Court, Rice county. Still pending.

The duties of the Attorney General in the matter of advice is limited by law to advising State officers, and to the giving of written opinions upon any question of law to either house of the Legislature when required. Notwithstanding this restriction, county, township, city, village, school, and all other officers, as well as private individuals, demand opinions of the Attorney General, not only on matters of public interest, but on matters of private interest as well. The labors of this office in this matter have become so extensive and so onerous that I have been compelled to respectfully decline all such calls from private persons and also most of such demands from officers of the subordinate municipalities except when received through the heads of the respective State departments to which the inquiries should have been directed. Nevertheless, I have between March 12, 1881, and Dec. 1, 1882, in addition to oral counsel to both State and county officers, given two hundred and fifty-three formal recorded opinions. As an indication of the increase of the labors of this office in this regard, I will state that during the six years that the late Judge Cornell graced this office as Attorney General, but seventy-four formal recorded opinions were given by him.

REPORTS OF COUNTY ATTORNEYS.

A tabular statement for the years 1881 and 1882 of offenses reported to this office by the County Attorneys of the State, showing the number, character and result of all criminal cases prosecuted by them during the past two years is hereto annexed.

Repeated attempts have been made to obtain returns from all counties, but I am compelled to submit my report without hearing from the counties of Aitkin, Becker, Carlton, Carver, Cottonwood, Crow Wing, Faribault, Kenabec, Marshall, Meeker, Nicollet, Rock, Scott, Stearns, Stevens, Swift, Washington, Wright and Yellow Medicine, for 1881, and from the counties of Aitkin, Benton, Carlton, Carver, Chippewa, Cottonwood, Crow Wing, Dakota, Dodge, Douglas, Freeborn, Hennepin, Kenabec, Kandiyohi, Kittson, Le Sueur, Meeker, Mille Lacs, Morrison, Pipe Stone, Polk, Ramsey, Redwood, Renville, Sherburne, Stearns, Stevens, Swift, Traverse, Wilkin, Winona, and Yellow Medicine for 1882, except so far as appears from the report of the District Attorney of the 12th Judicial District which shows the prosecutions conducted by him in the counties therein named, which report is also hereto annexed.

This matter of reports has been a source of much annoyance to this office for years.

No proper or satisfactory estimate of the criminal business of the State will likely be obtained unless some other and more effective means are provided to compel officers to comply with the law under an appropriate and adequate penalty for disobedience.

I can do no better than to repeat what was said by Judge Start in his report from this office in 1880, viz.:

"The County Attorneys of several counties have wholly disregarded the duty enjoined upon them by law, and have made no report to this office. Others have been so dilatory in making their reports that it has delayed this office in the preparation of its annual report. The object of these reports is the collection and preservation of correct statistical information in regard to the number and character of the crimes committed in the State, with the expenses of punishing the prepetrators thereof. The importance of such statistics is obvious, but their value is greatly impaired unless they are complete and accurate. It is respectfully suggested that to insure the making of these reports the law be amended so as to impose a penalty of fifty dollars and costs of collecting the same upon each delinquent, instead of the present nominal penalty of ten dollars, which is insufficient to pay the expenses of collecting. A statement of the costs of prosecution is omitted in many of the reports received, while in others it is stated that the costs are approximated. Any information as to the cost of crime to the people of the State, based upon such reports is of but little value. This is not the fault of the County Attorneys, for they have not the means of ascertaining the costs in each case, with any degree of accuracy.

"In this connection attention is respectfully called to the recommendation of the County Attorney of Hennepin county, to this office, to the effect that the law should be amended so that the clerk of the court shall, at the close of every criminal case, be required to tax all the costs incurred and make an entry of the amount thereof in his records, and report the same to the County Attorney on request. He will then have accurate data for compiling this part of his report."

The exhibits hereto attached, among other things, will show that for the year 1881 the total number of prosecutions of all kinds reported to this office is 893. Convictions, 563; acquittals, 118; nolle prosequi, 106. And for the year 1882 a total of 463. Convictions, 12; acquittals, 61; nolle prosequi, 53.

The following abstract, compiled from the reports of County Attorneys, show the number and result of the more important cases:

1881

OFFENSE.	Total.	Convictions.	Acquittals.	Nolle prosequi.	Still pending.
Offenses against life and person—					
Homicide	......	....	......	......	......
Murder in 1st degree	7	....	2	4	1
Manslaughter in 2d degree	3	3	......	......	......
Manslaughter in 4th degree	2	1	1	......	......
Assault with intent to kill	21	9	6	3	3
Assault with intent to do great bodily harm	32	20	5	4	3
Assault with dangerous weapon	8	7	1	....	......
Assault and battery	197	142	25	20	1
Robbery	8	4	3	......	1
Offenses against property—					
Arson	5	....	4	1	......
Burglary	14	12	......	2	......
Larceny	205	150	26	24	5
Embezzlement	8	3	3	......	2
Obtaining goods under false pretenses	12	7	3	1	1
Selling Mortgaged property	2	1	1	......	......
Cutting timber on private property	3	....	3	......	......
Cutting timber on school lands	5	1	2	2	......
Forgery	13	7	4	1	1
Offenses against public justice—					
Perjury	3	....	......	3	......
Offenses against public policy—					
Gambling	12	12	......	......	......
Swindling (three-card monte)	1	1	......	......	......
Offenses against chastity, morality and decency—					
Adultery	8	2	......	4	2
Bigamy	2	2	......	......	......
Seduction	1	....	1	......	......
Keeping house of ill-fame	8	5	3	......	......
Incest	1	....	1	......	......
Rape	7	2	4	1	......
Assault with intent to commit rape	5	2	2	......	1
Bastardy	6	2	3	1	......
Violation of liquor laws	151	83	7	18	43

1882

OFFENSE.	Total.	Convictions.	Acquittals.	Nolle prosequi	Still pending.
Offenses against life and person—					
Homicide	......	......	......	......	...
Murder in 1st degree	7	......	2	4	1
Murder in 2d degree	2	2	......	......	......
Manslaughter in 2d degree	3	3	......	......	......
Assault with intent to kill	10	9	2	4	......
Assault with intent to do great bodily harm	13	7	1	1	4
Assault and battery	98	82	12	4	......
Robbery	5	3	......	2	......
Offenses against property—					
Arson	1	......	......	......	1
Burglary	11	8	1	2	......
Larceny	62	37	12	6	7
Embezzlement	2	......	1	1	......
Obtaining goods under false pretenses	4	1	1	2	......
Selling mortgaged property	1	......	......	1	......
Cutting timber on private property	2	1	1	......	......
Forgery	8	3	......	1	4
Offenses against public justice—					
Perjury	2	......	1	1	......
Offenses against public policy—					
Gambling	1	......	1	......	......
Offenses against chastity, morality and decency—					
Adultery	3	2	1	......	......
Lewd and lascivious conduct	2	1	1	......	......
Seduction	2	1	......	......	1
Keeping house of ill-fame	1	1	......	......	......
Rape	2	1	1	......	......
Assault with intent to commit rape	1	1	......	......	......
Bastardy	1	......	1	......	......
Violation of liquor laws	68	42	22	4	......

The law requires the Attorney General to keep a register of all written official opinions given by him. In 1865, these opinions up to July 28, 1865, were published under an act passed by the Legislature of that year. Since then many interesting questions of constitutional law and statutory construction are carefully considered in the opinions of my eminent predecessors, Messrs. Cole, Colville, Cornell, Wilson and Start, with which the departments ought to be made familiar. If these opinions be worth anything they are worth the small cost of printing. I therefore suggest that they be printed and carefully indexed for the use of the departments.

It is made the duty of this office, by law, to direct attention to any defect in the practical operation of the laws relating to schools, revenue, and criminal offences, and to suggest such amendments as in the judgment of the Attorney General are necessary to subserve the public interest. In endeavoring to comply with this requirement I would be derelict did I not again call attention to the matter of the order of argument in criminal trials as fixed by chapter 41 of the general laws of 1875. Why the defendant in such cases should have the close I am at a loss to know. The same safeguards, the same favorable presumptions, the same rigorous requirements from the State, are in the main, still interposed to protect the life and liberty of a defendant that were interposed at a time when neither counsel nor witnesses were permitted to represent or to speak for him. If unable to procure attorneys to defend him, the court assigns and the State pays some one competent to look after his case. If too poor to procure the attendance of witnesses in his behalf, the compulsory process of the court is at his command for that purpose. By reason of the large number of challenges allowed him, he largely selects his own jury. In speaking of this matter, in his report for 1881, Judge Start earnestly urges a change in this law and suggests what appears to me, an eminently fair adjustment of the conflicting views upon this question. He says:

"The order of argument in a criminal trial, whereby the defendant's counsel is entitled to the close, is illogical, and in practice it has proven in many important cases an obstruction to the administration of justice. The burden of proof rests upon the State to establish the guilt of the defendant beyond a reasonable doubt. Logically, the right to close the argument should rest with the party who has the burden of establishing his proposition of fact, beyond a reasonable doubt. This is the rule in a large majority of the states of the Union, and such was the rule in this State prior to the amendment of the law in the year 1875. In practice, the counsel for the State is not informed of the propositions of fact or theories to be advanced by the defence until he has made his final argument. When his duties in the case are substantially ended, and he has no opportunity to reply, he is confronted for the first time with the views of the defence. If the case is barren of any legitimate defence, it sometimes happens that the prosecuting attorney or the witnesses for the State are put on trial by the defendant's counsel in his argument, or other irrelevant matters introduced, coupled with earnest appeals to the sympathies of the jury. The result is that unless the jury is unusually intelligent there is danger that the real issue will be lost sight of and criminals enlarged who are clearly proven to be guilty.

"It is urged in opposition to this view, and properly so, that under the rule that obtained prior to the amendment, the defendant was put to a disadvantage in not being apprized of what was to be urged against him by the attorney for the State, and had no opportunity to reply. I do not urge the re-enactment of the old rule, but believe that justice to the State and to the defendant is to be found in a modification of the present rule, whereby the prosecuting attorney, after the evidence is closed, shall open the argument to the jury, the counsel for the defence to follow, and the counsel for the State reply. In case the prosecuting attorney declines to open the argument to the jury after the evidence is closed, it shall be a waiver of his right to reply."

I also call attention to the fact that the maximum punishment for the crime of larceny in a dwelling house is only three years imprisonment in the state prison, while the maximum punishment for larceny, unaccompanied by the aggravation of entering a dwelling house, is seven years. The maximum punishment for the higher offense should be increased. Attention was called to a defect in section 14, chapter 39, general statutes of 1878, by my immediate predecessor, but as his report was not printed until about the time the Legislature adjourned, I will repeat what was said by him in reference thereto:

"The term 'with intent to defraud,' as used in section 14, chapter 39, General Statutes 1878, providing for the punishment of the fraudulent sale of personal property by the mortgagor, as construed by the Supreme Court, means an intent to defraud the mortgagee alone: that an intent to defraud the purchaser of the property is not an offence under the statute. Inasmuch as chattel mortgages are usually filed, and it is the purchaser who is defrauded by a sale, it would seem that the statute should be amended in this respect."

Before concluding this report there is one other matter I desire to call to the attention of your Excellency and through you to the attention of the Legislature. There are important criminal cases frequently arising in many of the counties of the State, that demand assistance, in their trial, from this office. On account of the vast increase in the labors of the Attorney General, and the large number of criminal and civil cases on behalf of the State in the Supreme Court and District Courts of Ramsey and Hennepin counties, which require his personal attention and supervision, he is unable to respond to but very few of the many calls made upon him for such assistance. I have in a number of cases, where I have been unable to be personally present, secured assistance for County Attorneys, where I thought it should be given, paying for the same out of the Attorney General's contingent fund. I have felt, however, that under the law as it now stands, I was limited, in the matter of pay, to ten dollars per day. It is difficult and in many cases impossible to secure competent assistance for that sum. I would therefore respectfully suggest that the law be amended, so as to authorize this office, when deemed necessary and when thė Attorney General, by reason of professional engagements, is unable to be personally present, to procure assistance for County Attorneys in the prosecution of criminal cases at an expense to the State of not to exceed, say twenty dollars per day.

Respectfully submitted,
WILLIAM J. HAHN,
Attorney General.

SECOND ANNUAL REPORT

OF THE

FARMERS' BOARD OF TRADE,

OF THE

STATE OF MINNESOTA,

FOR THE YEAR ENDING NOVEMBER 30, 1882.

TRANSMITTED TO THE LEGISLATURE OF THE TWENTY-THIRD SESSION
BEING THE SECOND BIENNIAL SESSION 1883.

MINNEAPOLIS:
JOHNSON, SMITH & HARRISON.
1883.

REPORT.

To the Honorable Senate and House of Representatives of the State of Minnesota.

Pursuant to the requirements of the statute under which this body is organized, we have the honor to lay before you this our second report concerning the matters with the supervision of which we are specially charged. In the performance of this duty we have concluded that it is best fulfilled by calling the attention of your honorable body, generally, to the matters and cases in which the agricultural classes are more particularly interested, and by which they may be more particularly affected, without attempting in this report to point out the specific remedial methods to be adopted by yourselves, as we feel it to be more particularly within our province to show the condition of the matters upon which we have to report; that the evils complained of have an existence, while the remedies properly applicable thereto will be originated and applied by yourselves.

Among the most important topics which have engaged our attention, and which particularly and directly affect the agricultural classes of this State, and in which, to our mind, the interest of the entire people of the State and our development is largely concerned, are the questions concerning the grading and inspection of wheat; that being the largest staple produced by our farming classes.

Since the organization of this body we have, as required by law, from time to time established grades of wheat to be observed by dealers in the different localities in this State, and the observance of which would, to our minds, be extremely beneficial to all classes. But as each grade has been established, owing to the entire absence of any legislative provisions by which such observance could be enforced, such grades have become practically useless, and their non-observance has become the rule, and their observance merely the exception.

When it is recollected that all wheat is sold by grade, that the margin at which it is sold is invariably a close one, and that the customs surrounding its sale and purchase have become almost speculative, closely resembling the dealings in stocks, it will not be necessary to argue at length that it is of vital importance to that industry that the grades of wheat which govern the market price as between seller and dealer should be established so that the grades shall be fixed and certain and within the knowledge of the seller and producer. As we have said the duty of establishing such a grade devolves upon this board and such grades were established; but the absence of legislative enactments to enforce the observance of such grades and of penalties for its non-observance have, as we have before stated, practically destroyed the usefulness of the grades established by us, and they are no longer regarded as being obligatory upon either producer or dealer. We therefore suggest that the grades of wheat in this State be established, and that without regard to eastern or foreign markets, and that such grades when so established be enforced by the enactment by the Legislature itself or proper penalties for the punishment of its non-observance.

In our former report upon this subject we dwelt at some length upon the necessity of the establishment of such grades; but as that necessity now seems to be conceded, we prefer to simply call your attention to the matter, and to further suggest that the legislative system to be enacted, if one is enacted, should involve and provide for the licensing of all warehousemen engaged in dealing or purchasing grain, and for a system of inspection which would reach all classes of buyers and enable the producer to have the grade of his wheat definitely fixed and established, and which will not leave them to the mercy and ignorance or dishonesty of particular persons who may be employed to act for the purchaser in particular localities, and whose only interest in their business is to procure the best possible wheat at the lowest possible prices.

The attention of this body has been largely given to the examination and observation of the transportation question in this State. We find that under the present condition of affairs the extensive growth of our railroads, the energy with which they have been built until they extend to nearly every hamlet in our State and reach far beyond our western boundaries, we find, we say, the business of the transportation of the products of the soil and of all kinds of freight has passed entirely into the hands of the railroad companies. This condition of things is one upon which we have to a certain extent the right to congratulate ourselves; its result is to establish a rapid and ordinarily satisfactory method of moving to eastern markets our large and annually increasing crop of grain. But while this effect is produced and the general prosperity of the State in one view is advanced, we feel many and gross abuses existing which your honorable body have the power to regulate and extinguish.

It is not the view of the members of this board to suggest or claim that either railroad companies or any other common carriers should not receive a fair and adequate remuneration for their services and for their transportation of either freight or passengers, but we do say, inasmuch as they have been and are liable to be the recipients at the hands of the public of many valuable favors and gratuities, both of moneys and lands, as well as of immunities and privileges conferred upon them, that not only their interests but the interests of the people of the State and particularly of the farming classes must be consulted in the common object in which both are engaged; and it is an undoubted fact that there exists in this State and in the business of the railroad companies engaged therein a deliberate and far-reaching system of over-charging and discrimination between certain persons, corporations and localities, the result of which is to deprive the farming classes of a large portion of the purchase price of their wheat and other commodities.

We suggest to your honorable bodies that such steps be taken by you for a thorough investigation of the evils complained of, and that effectual remedies be applied. Upon this matter we do not append any statistics. The particular information upon the subject referred to will be itself received by you, we presume, from the Railroad Commissioner of this State, who is specially charged with the duty of informing you upon the entire matter in all its details. We have no necessity to entrench upon his province, even if we were of the opinion that we could add anything to the information which you will undoubtedly derive from his report; but we do ask that our suggestions in this matter be read in the view of the statistics contained in his report, and that from both of these sources the necessary information may be obtained to enable you to act in the matter. It is enough to say that the truth of the statements cannot be gainsaid, and all of the railroad companies in this State whose business brings them into contact with such persons deliberately overcharge the farmer, the small dealer and the producer for freights upon his wheat and products, and also discriminate between him and certain large corporations concerned and engaged in the purchase of wheat as well as discriminating between certain favored points and localities.

The evils of such a system are so apparent in their statement that we will not pursue them further.

We desire again to call the attention of your honorable bodies to the question of timber culture in this State, and upon that point we take the liberty to reproduce in this report the language of the former one.

"It has seemed to this board proper to call the attention of the Legislature to a subject which is in our opinion of vital importance to the entire population of this State, affecting, as it does, not only the present but the future, and being intimately connected with the settlement and development of the entire State. It is well known that a large proportion of the arable acreage of Minnesota is contained in the treeless prairies which lie in the northern. western and southern portions of the State. You are well aware that during the few years last past the emigration to, and the development of this region has been enormous and almost without parallel in the history of any country. The enactments by Congress of homestead laws, tree culture acts, location of land warrants and pre-emptions have been exceedingly favorable, and almost the only obstacles that the settler has to contend with are the physical and climatic influences in the regions referred to. The capacity of the soil has been tested and has equalled and surpassed the highest expectations. The facility with which it can be cultivated is unquestionable and the results of ordinary cultivation have been and will be undoubtedly the most profitable. There is not only included in this region almost the entire wheat producing portion of the State, but the facilities which it offers to all forms of agriculture and stock raising are unsurpassed in the United States. There is, however, one obstacle with which the settler has to contend, which until recently has been believed to be almost insurmountable, and which to-day presents the gravest problem with which our State has to contend in the future. It is not necessary at this time or in this report to proceed in detail to point out the disadvantages to all classes and to all occupations arising from the absence of timber and fuel in the districts to which we have referred. The want is too apparent, too evident, and its imimportance too great to require any detailed statament of it. That it has to a certain extent been overcome is also evident; that it can be overcome successfuly and completely has been disinctly and clearly proven. And if such a result can be hastened by any legislative enactments or any public method devised which would be of benefit to parties now living in those districts, it seems to us of the last importance that it should be at once and immediately inaugurated. The enactments on the part of the United States touching timber culture have been of unquestionable benefit, as far as they go, but it is undoubtedly the case that coupled as they are with the acquisition of title to those valuable lands, the absence of proper supervision for ascertaining as to whether or not the law has been complied with, the inability of the frontier settler to provide himself with a necessary amount of proper trees, their general ignorance upon the subject of the most beneficial methods of cultivation, the looseness with which the statutes of the United States upon the subject are enforced, have all tended to cripple the effect of such legislation so that it has not resulted as beneficially as it might have done in the actual planting and growth of timber. We have therefore the honor to recommend to your body an inquiry by you as to the advisability of establishing in each of the treeless counties of this State a County Forestry, and the devoting therein of at least one section of the public lands to the cultivation and growth of the proper kind of trees and timber and according to the most approved methods. The distribution to the settlers by the county of such timber, when the same shall have been grown, and also the distribution among them of the necessary information to enable them to successfully cultivate such timber. The expense of such forestries would be nominal in comparison with the benefit which they would confer upon the entire State. As the cultivation of one section of land devoted wholly to timber could be done at comparatively slight expense and the benefits resulting from such course, both to the settler in those treeless regions and the State at large in the course of ten years would be absolutely beyond comparison."

We have much satisfaction in stating to you that the result of the adoption of your predecessors of the suggestion contained in our former report, touching the sheep and wool interests of this State, have been most satisfactory, and that this interest is now sufficiently protected by the laws enacted by former Legislatures to call for no further particular reference or comment from us.

In closing this report, we have only to say further that, in our view, it is sufficient for the proper performance of our duties to call your attention generally to the most important matters or conditions affecting the interests of the agricultural classes whom it is our province to represent before you. Under the present organization of this board but little can be done to further particular interests. The means at our command do not enable us to lay before you the statistics touching the several questions discussed. We are therefore dependent in this matter upon the reports of the other officers for the purpose of laying before you such statistics. But we do know that the evils we are complaining of in this report do exist, and to an extent far greater than we have here suggested, and by reason of this the interests of the agricultural classes, and not only of the agricultural classes, but the interests of the entire State are materially affected, and it is absolutely necessary that a wise and careful system of legislative remedies should be adopted and applied to them. And when such a system is adopted and applied the beneficial results will immediately appear.

It may be that in the future you may propose and enact such changes in the organization of and the duties of this board as will enable us to lay before you at greater length and with more particularity and detail, the conditions of the different subjects to which our attention has been directed; but until that shall be done, we find it only possible to call your attention to the most salient matters that have engaged our attention, and we believe upon our part that such a general indication affecting the interests of our agricultural classes will be sufficient to enable your honorable bodies to provide and apply legislative remedies.

We have the honor to submit this report for your consideration.

LYMAN LORING, President.

GEORGE GILES, Secretary.

REPORT

OF THE

AUDITOR OF STATE

TO THE

LEGISLATURE OF MINNESOTA,

FOR THE

BIENNIAL PERIOD ENDING NOVEMBER 30, 1882.

Transmitted to the Legislature of the Second Biennial
Session, 1883.

MINNEAPOLIS:
JOHNSON, SMITH & HARRISON.
1883.

1-21

STATE OF MINNESOTA,
AUDITOR'S OFFICE,
ST. PAUL, JANUARY 4, 1883.

To the Honorable the Legislature of Minnesota:

I have the honor to submit the following report, showing the transactions of the State Treasury and the business of this department, for the biennial period ending November 30, 1882.

W. W. BRADEN,
Auditor of State,
and *ex officio* Commissioner of the State Land Office.

REPORT.

AUDITOR'S DEPARTMENT.

RECEIPTS AND DISBURSEMENTS FOR THE FISCAL YEAR ENDING NOVEMBER 30, 1881.

RECEIPTS.

There was remaining in the treasury November 30, 1880, to the credit of the following funds.

State Institutions Fund	$120,879 38	
Interest Fund	18,047 63	
Sinking Fund	886 37	
Permanent School Fund	44,246 73	
General School Fund	21,489 37	
Permanent University Fund	13,682 85	
General University Fund	25,238 63	
Internal Improvement Land Fund	20,714 75	
Internal Improvement Fund	3,849 51	
Inebriate Asylum Fund	76 41	
School Text Book Fund	1,287 05	
	$270,398 68	
Revenue Fund overdraft	6,246 69	
Balance Nov. 30, 1880		$264,151 99

There was received during the year for

State Taxes	$504,666 80
Taxes on gross receipts R. R. Companies	329,555 50
Taxes on Telegraph Companies	1,070 00
Taxes on Insurance Companies	31,669 25
Fees of Insurance Companies	6,534 00
Interest on State deposits	12,531 65
Keeping U. S. convicts	756 75
Loans to Counties in '77 and '8 for seed grain	35,860 13

Inmates of Reform School from Counties........	9,845 00	
Insurance on State Library and Interest.........	10,200 00	
Principal paid on School Lands	221,799 53	
Principal paid on University and Agl. Col. Lands	17,292 86	
Principal paid on Internal Improvement Lands..	31,291 53	
Sales of Pine Timber on School Lands..........	24,909 91	
Sales of Pine Timber on University Lands......	106 46	
Sales of Pine Timber on Internal Imp. Lands....	1,616 10	
Railroad Right of Way on School Lands........	1,166 81	
Railroad Right of Way on Internal Imp. Lands..	362 45	
Interest on School Land Contracts.............	171,587 16	
Interest on Universty and Ag. Col. Land Contracts	20,213 89	
Interest on Internal Improvement Land Contracts	30,147 27	
Interest on School Fund Bonds................	103,698 33	
Interest on University Fund Bonds............	9,355 00	
Interest on Internal Imp. Land Fund Bonds.....	9,500 00	
Interest on Stumpage Accounts................	438 58	
Redemption of Minnesota Loan of 1873.........	70,000 00	
Redemption of Minnesota Loan of 1878.........	30,000 00	
Redemption of United States 6 per cent. gold....	10,000 00	
Five per cent. of cash sales Government Lands..	3,115 98	
Miscellaneous receipts of Revenue Fund...	1,768 24	
School Text Books furnished Counties..........	13,547 92	
Salary Attorney 12th Judicial District..........	798 97	
		$1,715,406 07
		$1,979,558 06

DISBURSEMENTS.

Legislative Expenses—Regular Session.........	$73,206 03
Legislative Expenses—Extra Session...........	46,132 35
Legislative Com. Inv. St. Cloud Normal School..	818 94
Executive Expenses.......	63,545 74
Judicial.................................. .	68,601 36
Printing..................	24,032 77
Printing Paper..............................	6,210 82
Printing Laws in Newspapers............. ...	32,044 60
Stationery................................. .	3,746 20
Supreme Court Reports......................	2,200 00
Insane Support, First Hospital.................	99,486 70
Insane Support, Second Hospital.......... .. .	35,684 29
Prison Current Expenses................. ..	49,964 56
Prison Insurance...........................	1,003 68
D. D. B. and Imbecile support.........	39,571 45
Examining Commission (Insane)...............	91 85
Support of Normal Schools....................	38,258 47
Support of Reform Schools....................	30,000 00
Repairs, etc., Reform School..................	7,500 00
Support of Historical Society..................	3,969 08
Expenses Soldiers' Orphans...................	72 35
Buildings, First Hospital for Insane...........	67,306 17

Buildings, Second Hospital for Insane...........	36,595	51
Repairs of Normal School, Mankato..........	10,000	00
Extending grounds of Normal School, St. Cloud..	650	00
Extending grounds of University...............	20,000	00
Grading grounds Normal School, Winona.......	950	00
Improving grounds Normal School, Winona.....	250	00
Building for Idiots and Imbeciles	9,804	51
Heating Deaf, Dumb and Blind building........	795	00
Water supply for University..................	500	00
Rebuilding Capitol................	44,285	01
Boiler room, Capitol.........................	1,500	00
Repairs, Capitol roof...................... ..	145	92
Repairs, Capitol............................	264	32
Furnishing Senate Chamber, deficiency....... .	2,673	16
Furnishing Legislative Halls, Market House.....	977	81
Furnishing Offices, Market House..............	383	75
Gas Fixtures for Library, Market House	42	00
Rent of Arsenal............................	425	50
Fuel and Lights......................	2,955	38
Purchase of books for Law Library.............	15,031	14
Binding books for Law Library.................	97	10
Indexing Laws...............................	200	00
Interest on Loans, 1873 and 1878	9,485	55
Interest on temporary loans...................	925	59
Redemption Minn. bonds, 1873.............	70,000	00
Redemption Minn. bonds, 1878.................	30,000	00
Purchase of bonds—permanent school...........	70,000	00
Refunded on sale—permanent school...........	192	00
Refunded on sale, general school...............	67	88
Refunded on sale, internal improvement........	41	80
Apportioned school fund................. ..	259,414	96
Premium and accrued interest on bonds.........	9,872	65
Support of University	47,000	00
State Board of Immigration...................	6,373	02
State Board of Health.........................	1,349	95
State Board of Equalization.........	974	00
State Forestry Association....................	164	65
State Horticultural Society....................	131	00
Fish Commissioners..........................	3,700	00
Agricultural Societies................	2,945	94
Farmers' Board of Trade.................. ..	372	80
Training Schools and Institutes................	2,765	00
Minnesota National Guards................	1,500	00
Governor's Guards—New Ulm	128	00
Wolf Bounties	7,946	00
Arrest and Conviction of Horse Thieves.........	4,700	00
Tree Planting Claims........................	3,304	00
State Land Agent...........................	500	00
Selling State Lands..........................	5,897	86

Selecting Indemnity Lands	959 04	
Registers' and Receivers' Lists of Taxable Lands	182 65	
State Costs	159 77	
Express and Mileage	513 76	
Sheriffs' Expenses and Requisitions	3,679 91	
Appraising Prison Machinery	854 57	
Superintendent of Fruit Farm	916	
Attorneys' Fees, Bond Adjustment	2,500	
Expenses of Bond Adjustment	1 58 50	
Ex-Governors' Portraits	500 00	
Administering Oaths—Pension cases	284 50	
Crow Wing County	429 93	
Murray County	300 00	
Reading Proof State Reports	400 00	
Individuals	233 00	
Roads and Bridges, Internal Improvement Fund	2,100 00	
School Text Books	13,617 31	
Attorney Twelfth District	798 97	
		$1,421,813 79
Balance in Treasury November 30, 1881		557,744 27

To the credit of—

State Institutions Fund	$82,746 37	
Interest Fund	6,230 58	
Sinking Fund	22,445 71	
Permanent School Fund	316,930 98	
General School Fund	29,975 78	
Permanent University Fund	46,232 17	
General University Fund	31,701 91	
Internal Improvement Land Fund	93,739 98	
Internal Improvement Fund	4,865 49	
School Text Book Fund	1,217 66	
	$636,086 63	
Revenue Fund overdraft	78,342 36	
Balance November 30, 1881		$557,744 27

RECEIPTS AND DISBURSEMENTS DURING YEAR ENDING NOVEMBER 30, 1882.

RECEIPTS.

State Taxes	$402,600 08
Taxes on gross receipts of Railroad Companies	470,556 65
Taxes on Insurance Companies	38,826 78
Fees of Insurance Companies	6,355 00
Counties for seed grain loans 1877 and 1878	18,405 93
Counties for Reform School inmates	21,391 18
Keeping United States convicts	494 25
Interest on deposits of State Funds	8,417 23

Sale of $99,000 United States 6's School Fund....	127,710 00	
Sale of $241,000 United States 4's School Fund...	282,303 10	
Sale of $24,000 United States 4's Univer. Fund...	27,726 00	
Sale of $5,000 United States 6's Univer. Fund....	6,445 00	
Sale of $122,000 Missouri 6's University Fund....	134,505 50	
Sale of $108,000 U. S. 6's I. I. Land Fund.......	138,037 00	
Sale of $1,000 Missouri 6's I. I. Land Fund......	1.089 00	
Sale of $74,000 U. S. 4's I. I. Land Fund........	85,488 50	
Redemption $80,000 Minn. 7's '73 School Fund...	80.000 00	
Redemption $24,000 Minn. 6's '78 School Fund...	24,000 00	
Redemption $21,000 Mo. 6's (called) Sch. Fund...	21,000 00	
Interest on bonds of Permanent School Fund.....	81.225 10	
Interest on bonds of Permanent University Fund..	9,472 50	
Interest on bonds of I. I. Land Fund...........	4,010 00	
Principal paid on School Land contracts.........	231,581 86	
Principal paid on Univ. and Agr. Col. contracts..	12,491 85	
Principal paid on Internal Improvement land contracts................................	32,198 13	
Interest paid on School land contracts	167,157 46	
Interest paid on University and Agricultural College land contracts.....................	20,326 50	
Interest paid on Internal Improvement land contracts................................ ...	32,832 78	
Sales of pine timber on School lands....	54,216 99	
Sales of pine timber on University lands........	29,632 59	
Sales of pine timber on Int. Improvement lands.	498 25	
Trespass on Swamp lands	2,013 68	
Railroad right of way and damages on lands.....	95 13	
Interest on deferred stumpage payments........	2,833 17	
U. S. government 5 per cent. of Indian Reservation lands sold............................	31,623 04	
U. S. government 5 per cent. of sales of public lands................................	17,938 39	
Sales of grass on State lands................ ...	1,293 11	
Miscellaneous revenue fund receipts	612 37	
Refunded by Regents of University............	2,000 00	
Counties for School Text Books.................	12,066 39	
Counties for salary Attorney 12th District.......	2,201 03	
		$2,643,671 52
		$3,201,415 79

DISBURSEMENTS.

Legislative..	18 00
Senate Court of Impeachment..................	28,867 65
Senate Court investigation St. Cloud Normal....	39 04
Executive expenses...........................	59,937 68
Judicial expenses.	77,902 47
Printing......................	25,894 83
Printing paper and stationery...	6,048 51
Printing laws in newspapers..................	1,305 40

Indexing laws, extra session	200	00
Preparing and publishing Tax Laws	1,000	00
Preparing Legislative Manual	235	00
Purchase of books, Law Library	3,603	20
Binding books, Law Library	231	70
Supreme Court Reports	1,600	00
Support of first Hospital for Insane	104,491	92
Support of second Hospital for Insane	42,465	18
Support of Prison	51,358	37
Support of D. D. and B., and Imbecile schools	45,074	15
Support of Reform schools	32,000	00
Support of Normal schools	37,023	38
Support of Historical Society	3,391	93
Building and Repairs First Insane Hospital	72,000	00
Building and Repairs Second Insane Hospital	60,546	60
Rebuilding Capitol	130,689	29
Capitol Roof and Boiler room	8,500	00
Furnishing Offices at Market House	1,223	14
Rent of Arsenal	515	48
Prison Wall, Grading, &c	19,609	01
Building for Idiots and Imbeciles	15,195	49
Prison Water Pipes Extension	520	00
Water Supply for University	1,000	00
Cistern at Reform School	2,000	00
Enlarging Grounds D. D. and B. Institute	4,000	00
Enlarging Grounds Mankato Normal School	1,800	00
Enlarging Grounds St. Cloud Normal School	150	00
Improving Grounds Winona Normal School	4,750	00
Redemption of Loan of 1873	80,000	00
Redemption of Loan of 1878	24,000	00
Interest on R. R. Adjustment Bonds	88,086	45
Interest on Loans 1873 and 1878	11,706	15
Interest on Text Book Warrants	605	00
Support of University	53,881	41
Purchase of Bonds Permanent School Fund	1,033,000	00
Purchase of Bonds Permanent University Fund	241,000	00
Purchase of Bonds Internal Improv. Land Fund	322,000	00
Refunded on canceled Land Sales	270	32
Accrued Interest and Expenses on Bonds bought	2,869	78
Express charges on Bonds returned from N. Y	565	00
Apportioned School Fund	259,097	89
State Board of Health	2,154	28
State Board of Immigration	3,085	01
State Board of Equalization	990	90
Farmers' Board of Trade	611	35
Agricultural Societies	2,891	89
Horticultural Society	1,369	00
Fish Commissioners	4,500	00
High School Board	15,814	28

Training Schools and Institutes	3,235 00	
Minnesota National Guards	3,861 23	
Mississippi River Commission	830 00	
Superintendent of Fruit Farm	1,000 00	
Fuel and Lights	2,458 37	
Bond Adjustment expenses	1,724 92	
State costs	99 53	
State Land Agent	822 00	
Expenses selling State lands, etc	3,294 00	
Selecting Indemnity State lands	1,520 03	
Selecting University lands	321 25	
Register and Receiver's lists of taxable lands	347 00	
Sheriffs' expenses	2,864 80	
Requisitions	688 35	
Arrest and conviction of horse thieves	2,299 98	
Wolf bounties	9,239 00	
Express and mileage	837 81	
Tree planting claims	2,612 00	
Pine County	750 00	
Watonwan county	54 55	
Roads and Bridges	12,150 00	
School Text Books	11,420 23	
Salary Attorney 12th Judicial District	2,201 03	
		$3,058,317 21
Balance in treasury Nov. 30, 1882		$143,098 58

To the credit of—

State Institutions Fund	$20,246 91	
Interest Fund	6,818 17	
Sinking Fund	1,383 16	
Permanent School Fund	104,165 79	
General School Fund	18,664 02	
Permanent University Fund	16,003 11	
General University Fund	12,499 98	
Internal Improvement Land Fund	65,910 32	
Internal Improvement Fund	10,653 88	
Forestry Fund	25,686 10	
Swamp Land Fund	2,013 68	
School Text Book Fund	1,863 82	
Total	$285,908 94	
Revenue Fund overdraft	142,810 36	
Balance November 30, 1882		$143,098 58

WARRANT ACCOUNT.

Amount outstanding Nov. 30, 1880	$ 11,004 22	
Amount issued during fiscal year 1881	1,435,043 47	
Amount issued during fiscal year 1882	3,084,685 09	
		$4,530,732 78

Amount redeemed during fiscal year 1881	$1,421,813 79	
Amount redeemed during fiscal year 1882	3,058,317 21	
		4,480,131 00
Amount outstanding Nov. 30, 1882		$50,601 78

Payable from the following funds—

Revenue Fund	$21,757 78	
State Institutions Fund	6,000 00	
Interest Fund	184 16	
Permanent School Fund	800 00	
General School Fund	9,675 63	
Internal Improvement Fund	250 00	
School Text Book Fund	11,934 21	
		$50,601 78

APPROPRIATION ACCOUNT.

Amount unexpended Nov. 30, 1880	$133,000 61	
Amount of Appropriations 1881	1,739,913 26	
Amount of Overdrafts 1881	159 18	
Amount of Appropriations 1882	2,970,686 56	
		$4,843,759 61
Appropriations expended during the year 1881	$1,434,116 79	
Appropriations of former years cancelled	19,629 25	
Overdrafts	159 18	
Appropriations expended during the year 1882	3,084,685 06	
Appropriations of former years cancelled	4,350 87	
Appropriations unexpended Nov. 30, 1882	300,818 46	
		$4,843,759 61

STATE DEBT.

Amount of 7 per cent loan of 1873, for erecting buildings for State institutions, unredeemed Nov. 30, 1882	$25,000 00
Amount of 6 per cent loan of 1868, for the purchase of seed grain for settlers, unredeemed Nov. 30, 1882	61,000 00
Amount of 4½ per cent Railroad Adjustment bonds, dated July 1, 1881, issued to redeem the heretofore unrecognized debt of 1858	4,253,000 00
Total bonded debt Nov. 30, 1882	$4,339,000 00

REVENUE FROM TAXES.

Delinquent State taxes Nov. 30, 1880		$250,867 24
State taxes levied Dec. 1, 1880	$464,538 29	
Additions to lists	1,565 72	
		466,104 01
		$716,971 25
State taxes collected in 1881	$504,666 80	
State taxes abated in 1881	15,086 26	
		519,753 06

Delinquent State taxes Nov. 30, 1881			$197,218 19
State taxes levied Dec. 1, 1881		$379,689 25	
Additions to lists		2,730 87	
			382,420 12
			$579,638 31
State taxes collected in 1882		$402,600 08	
State taxes abated in 1882		8,049 65	
			410,649 73
Delinquent State taxes Nov. 30, 1882			$168,988 58
Delinquent seed grain loans Nov. 30, 1880		$128,587 60	
Amount paid in 1881	$35,860 13		
Amount paid in 1882	18,405 93		
		$54,266 06	
Amount of seed grain loans unpaid Nov. 30, 1882			74,321 54
Debit balances of counties Nov. 30, 1882			$243,310 12

RECEIPTS AND DISBURSEMENTS BY FUNDS.

GENERAL REVENUE FUND.

Receipts for the year ending Nov. 30, 1881—

Collections of State Taxes	$317,437 31	
Reform School Indebtedness	9,845 00	
Interest on State Deposits	9,869 84	
Insurance Companies for Taxes	31,669 25	
Insurance Companies for Fees	6,534 00	
Keeping U. S. Convicts	756 75	
Insurance on Law Library	10,000 00	
Interest on Insurance on Law Library	200 00	
Sale of Grass on State Lands	746 23	
Warrant No. 14965 refunded	926 68	
Attorney General Start's costs recovered	16 58	
Sale of Special Laws	2 15	
M. Nelson for old carpet	9 00	
G. W. Buck scaleage on timber	1 50	
Hon. W. M. Campbell postage returned	10 00	
Hon. C. A. Pillsbury postage returned	10 00	
Hon. J. B. Gilfillan postage returned	10 00	
Hon. C. D. Gilfillan postage returned	10 00	
Hon. D. J. Dodge mileage returned	15 00	
Hon. H. F. Kohlmier mileage returned	10 50	
Hon. Jos. Burger mileage returned	60	
		$388,080 39

DISBURSEMENTS.

Overdraft, Nov. 30, 1880	$ 6,246 69
Legislative expenses—Regular Session	72,998 23
Legislative expenses—Deficiency Regular Session	207 80

Legislative expenses—Extra Session............	46,132	35
Legislative Com. Inv. St. Cloud Normal School..	818	94
Executive expenses..........................	63,545	74
Judicial expenses..........................	68,601	36
State Printing..............................	24,032	77
Printing Paper............................	6.210	82
Stationery....................................	3,746	20
Supreme Court Reports......................	2,200	00
Printing Laws in Newspapers.................	32,044	60
Binding Law Books..........................	97	10
Indexing Laws..............................	200	00
Purchase of books for Law Library............	15,031	14
Reading proof of State Reports...............	400	00
Rebuilding Capitol........	44,285	01
Boiler room, capitol.........................	1,500	00
Repairs, capitol roof....	145	92
Repairs, capitol................................	264	32
Furnishing Senate Chamber—deficiency........	2,673	16
Filling Legislative Halls, Market House.........	977	81
Furnishing offices, Market House.	383	75
Gas fixtures for Law Library, Market House.....	42	00
Rent of Arsenal.........................	425	50
Building for Idiots and Imbeciles...............	9,804	51
Heating Deaf, Dumb and Blind building.......	795	00
Grading and improving Winona Normal School grounds..................................	1,200	00
Water supply for University....................	500	00
Fuel and Lights............................	2,955	38
Appraising Prison Machinery..................	854	57
State Board of Immigration..................	6,373	02
State Board of Health.......................	1,349	95
State Board of Equalization....	974	00
State Horticultural Society............	131	00
State Forestry Association........	164	65
Farmers' Board of Trade.....................	372	80
Agricultural Societies.........................	2,945	94
Superintendent of Fruit Farm............	916	70
Historical Society............................	1,107	50
Fish Commission.......	3,700	00
Training Schools and Institutes...............	2,765	00
Minnesota National Guard...................	1,500	00
Governor's Guards, New Ulm.................	128	00
Sheriffs' expenses......................... ...	3,138	06
Requisitions.......	541	85
Arrest and conviction of horse thieves..........	4,700	00
Wolf Bounties...	7,946	00
Selling State Lands..............	5,897	86
Selecting Indemnity Lands....................	959	04
State Land Agent............................	500	00

State Costs	159 77	
Attorneys' fees, bond adjustment	2,500 00	
Expenses of bond adjustment	1,658 50	
Register and Receiver's fees	182 65	
Tree Planting Claims	3,304 00	
Express and Mileage	513 76	
Interest on Temporary Loans	925 59	
Administering Oaths in Pension Cases	284 50	
Ex-Governors' Portraits	500 00	
Crow Wing County	429 93	
Murray County	300 00	
Victor Hjortsberg	125 00	
John Patterson	75 00	
A. G. Perkins	18 50	
J. Q. A. Ward	14 50	
	$466,422 75	
Overdraft Nov. 30, 1881	78,342 36	
		$388,080 39

Receipts for the year ending Nov. 30, 1882—

State Taxes Collected	$294,924 57	
Reform School Indebtedness	21,391 18	
Five per cent. on Indian Res. sold by U. S	31,623 04	
Insurance Companies Taxes	38,826 78	
Insurance Companies Fees	6,355 00	
Keeping U. S. Convicts	494 25	
Interest on State Deposits	8,417 23	
Scaleage on Pine Timber	306 32	
Sales of Special Laws	38 05	
Hon. C. A. Pillsbury Imp. Court per diem refunded	250 00	
Hon. F. S. Christensen for matting	18 00	
		$402,644 42

DISBURSEMENTS.

Overdraft Nov. 30, 1881	$78,342 36	
Legislative	18 00	
Senate Court of Impeachment expenses	28,867 65	
Senate Com. Inv. St. Cloud Normal School	39 04	
Executive expenses	59,937 68	
Judicial expenses	79,502 47	
Public Printing	25,894 83	
Printing Paper	4,459 88	
Stationery	1,588 63	
Preparing and publishing tax law	1,000 00	
Printing laws in newspapers	1,305 40	
Legislative manual	235 00	
Books for law library	3,603 20	
Binding law books	231 70	
Rebuilding capitol	30,695 85	
Finishing and furnishing capitol	99,993 44	

Capitol roof	7,000 00	
Capitol boiler room	1,500 00	
Capitol repairs, etc	36 85	
Furnishing offices, Market House	1,186 29	
Building for Idiots and Imbeciles	15,195 49	
Reform School cistern	2,000 00	
Prison wall and grading	19,609 01	
Prison water pipes extension	520 00	
Water supply for University	1,000 00	
Enlarging grounds for Deaf, Dumb and Blind Institute	4,000 00	
Improving grounds Winona Normal School	4,750 00	
Enlarging grounds St. Cloud Normal School	150 00	
Enlarging grounds Mankato Normal School	1,800 00	
Selling State lands	3,294 00	
Selecting Indemnity lands	1,520 03	
Selecting University lands	321 25	
State Land Agent	822 00	
Register and Receiver's fees, lists for taxation	347 00	
State Board of Immigration	3,085 01	
State Board of Health	2,154 28	
State Board of Equalization	990 90	
State Horticultural Society	1,369 00	
Fish Commission	4,500 00	
Farmers' Board of Trade	611 35	
Agricultural Societies	2,891 89	
High School Board	15,814 28	
Minnesota National Guards	3,861 23	
Mississippi River Commission	830 00	
Training Schools and Institutes	3,235 00	
Superintendent of Fruit Farm	1,000 00	
Tree Planting Claims	2,612 00	
Fuel and Lights	2,458 37	
Rent of Arsenal	515 48	
Indexing laws extra session	200 00	
Bond Adjustment expenses	1,724 92	
State costs	99 53	
Express and mileage	837 81	
Sheriffs' expenses	2,864 80	
Requisitions	688 35	
Wolf bounties	9,239 00	
Arrest and conviction horse thieves	2,299 98	
Pine County	750 00	
Watonwan County	54 55	
	$545,454 78	
Overdraft Nov. 30, 1882	142,810 36	
		$402,644 42

STATE INSTITUTIONS FUND.

Receipts for the year ending Nov. 30, 1881.

Balance in treasury Nov. 30, 1880		$120,879 38
Collections of State taxes	$70.211 69	
Railroad companies taxes	329.555 50	
Telegraph companies taxes	1,070 00	
Inebriate Asylum, fund transferred	76 41	
		$400,913 60
		$521,792

DISBURSEMENTS.

Support of 1st Hospital for Insane	$99,486 70	
Support of 2nd Hospital for Insane	35,684 29	
Support of Prison	49,964 56	
Support of Deaf, Dumb, Blind and Imbeciles	39,571 45	
Support of Reform School	30,000 00	
Support of Reform School, deficiency and repairs.	7,500 00	
Support of Normal Schools	38,258 47	
Support of Historical Society	2,861 58	
Support of Soldiers' Orphans	72 35	
Buildings 1st Hospital for Insane	67,306 17	
Buildings 2nd Hospital for Insane	36,595 51	
Repairs of Mankato Normal School	10,000 00	
Extending grounds St. Cloud Normal School	650 00	
Extending grounds University	20,000 00	
Insurance of Prison	1,003 68	
Commission visiting Insane Hospitals	91 85	
		$439,046 61
Balance in Treasury Nov. 30, 1881		82,746 37

Receipts for year ending Nov. 30, 1882.

Collections of State Taxes	$ 3,381 87	
R. R. Companies Taxes	470,556 65	
		$473.938 52
		556,684 89

DISBURSEMENTS.

Support of First Insane Hospital	$104,491 92	
Support of Second Insane Hospital	42,465 18	
Support of Prison	51.358 37	
Support of D. D. B. & Imbeciles	45,074 15	
Support of Reform School	32,000 00	
Support of Normal Schools	37,023 38	
Support of Historical Society	3.391 93	
Buildings for First Insane Hospital	72,000 00	
Buildings for Second Insane Hospital	60.546 60	
Interest on R. R. Adjustment Bonds	88,086 45	
		$536,437 98
Balance in Treasury Nov. 30, 1882		20,246 91

INTEREST FUND.

Receipts for year ending Nov. 30, 1881—

Balance in Treasury Nov. 30, 1880		$18,047 63
Collections of State Taxes...............		23,869 51
		41,917 14

DISBURSEMENTS.

Transfer to Sinking Fund.....................	$16,201 01	
Interest on State Loans......................	19,485 55	
		$35,686 56
Balance in Treasury Nov. 30, 1881.........		6,230 58

Receipts for year ending Nov. 30, 1882—

Collections of States Taxes,....................		12,898 74
		19,129 32

DISBURSEMENTS.

Interest on Loans of 1873 and 1878.............	$11,706 15	
Interest on School Text Book Warrants....... .	605 00	
		$12,311 15
Balance in Treasury, Nov. 30, 1882,............		6,818 17

SINKING FUND.

Balance in Treasury, Nov. 30, 1880.............		$886 37

Receipts for year ending Nov. 30, 1881,

Transfer from Interest Fund,..................	$16,201 01	
Collections of State Taxes,....................	69,498 20	
Collections on account of seed grain loans,......	35,860 13	
		$121,559 34
		$122,445 71

DISBURSEMENTS.

Redemption of $70,000, Minn. 7s of 1873,.......	$70,000 00	
Redemption of $30,000, Minn. 6s of 1878,.... ..	30,000 00	
		$100,000 00
Balance in Treasury, Nov. 30, 1881............		$22,445 71

Receipts for year ending Nov. 30, 1882.

Collections of State Taxes,....................	$64,531 52	
Collections on acc't of seed grain loans,.........	18,405 93	
		$82,937 45
		105,383 16

DISBURSEMENTS.

Redemption of $80,000 Minn. 7s of 1873,.......	$80,000 00	
Redemption of $24,000 Minn. 6s of 1878........	24,000 00	
		$104,000 00
Balance in Treasury Nov. 30, 1882........ ...		1,383 16

INEBRIATE ASYLUM FUND.

Balance in Treasury, Nov. 30, 1880,............	76 41
DISBURSEMENTS.	
Transfer to State Institutions Fund,............	76 41

Account closed Nov. 30, 1881.

FORESTRY FUND.

Receipts during year ending Nov. 30, 1882—	
Collections of State Taxes.....................	$25,686 10
Balance in Treasury Nov. 30, 1882..........	25,686 10

INTERNAL IMPROVEMENT FUND.

Balance in Treasury Nov. 30, 1880..........	3,849 51
Receipts during year ending Nov. 30, 1881—	
U. S. Gov. 5 per cent. on cash sales of public lands	3,115 98
	$6,965 49
DISBURSEMENTS.	
For Sundry Bridge and Road Appropriations....	2,100 00
Balance in Treasury Nov. 30, 1881..........	$4,865 49
Receipts during year ending Nov. 30, 1882—	
U. S. Gov. 5 per cent. on cash sales of public lands	17,938 39
	22,803 88
DISBURSEMENTS.	
For Sundry Bridge and Road Appropriations....	12,150 00
Balance in Treasury Nov. 30, 1882..........	$10,653 88

SCHOOL TEXT BOOK FUND.

Balance in Treasury Nov. 30, 1880..............	1,287 05
Receipts during year ending Nov. 30, 1881—	
Collected from Counties.......................	13,547 92
	$14,834 97
DISBURSEMENTS.	
Paid Contractor during the year................	13,617 31
Balance in Treasury Nov. 30, 1881	$1,217 66
Receipts during year ending Nov. 30, 1882—	
Collected from Counties.......................	12,066 39
	$13,284 05
DISBURSEMENTS.	
Paid Contractor during the year	11,420 23
Balance in Treasury Nov. 30, 1882..........	$1,863 82

ATTORNEY OF TWELFTH JUDICIAL DISTRICT.

Receipts during year ending Nov. 30, 1881—

From Counties in Twelfth District.............	79 97

DISBURSEMENTS.

Paid J. W. Arctander on account of salary......	798 87

Receipts during year ending Nov. 30, 1882—

From Counties in Twelfth District..............	$2,201 03

DISBURSEMENTS.

Paid J. W. Arctander on account of salary......	$2,201 03

SWAMP LAND FUND.

Receipts during year ending Nov. 30, 1882—

Received for trespass on Swamp Lands..........	$2,013 68
Balance in Treasury Nov. 30, 1882...............	$2,013 68

PERMANENT SCHOOL FUND.

Receipts for the year ending Nov. 30, 1881.

Balance in Treasury, Nov. 30, 1880.............		$44,246 73
Principal paid during the year on former sales of land,......................................	$134 774 07	
Principal paid on sales of land in 1881,...........	87,025 46	
Sales of pine timber,..........................	24,909 91	
Redemption of $55,000 Minn. 7 per cent. 1873 ...	55,000 00	
Redemption of $30,000 Minn. 6 per cent. 1878....	30,000 00	
Redemption of $10,000 U. S. 6 per cent. gold....	10,000 00	
Railroad right of way on school lands............	1,166 81	
		$342,876 25
		$387,122 98

DISBURSEMENTS.

Purchase of $31,000 Mo. 6 per cent. bonds......	$31,000 00	
Purchase of $39,000 U. S. 4 per cent. bonds......	39,000 00	
Refunded to A. H. Brayton on erronous sale of SW. ¼ S. 16, T. 104, R. 4.................	192 00	
		$70,192 00
Balance Nov. 30, 1881.........................		$316,930 98

Receipts for the year ending Nov. 30, 1882.

Principal paid during the year on former sales of land..........	$210,863 21
Principal paid on sales of land in 1882..........	20,778 69
Sales of pine timber..................	54,216 99
Redemption $80,000 Minn. 7 per cent., 1873.....	80,000 00
Redemption $24,000 Minn. 6 per cent 1878......	24,000 00
Redemption $21 000 Mo. 6 per cent. called......	21,000 00
Sales $99,000 U. S. 6 per cent. cost.............	106,489 95

Sales $241,000 U. S. 4 per cent. cost	241,000 00	
Profit on sales of U. S. 6 per cent	21,220 05	
Profit on sales of U. S. 4 per cent	41,303 10	
Railroad right of way on school lands	20 00	
Damage to school lands	58 45	
		$820,950 44
		$1,137,881 42

DISBURSEMENTS.

purchase of 1,033,000 Minn. 4½ per cent	$1,033,000 00	
Refunded to G. O. Hickcox, for erronous sale of lot 1 & SE¼SE¼ S. 36, T. 119, R. 31	77 25	
Refunded W. W. Griswold for erroneous sale of lot 1 and SE. ¼ SE. ¼ S. 9, T 124, R. 43,	73 38	
Charges on Missouri bonds sent to New York for sale and returned unsold	565 00	
		$1,033,715 63
Balance Nov. 30, 1882		$104,165 79

GENERAL SCHOOL FUND.

Receipts for the year ending Nov. 30, 1881:

Balance in treasury Nov. 30, 1880		$21,296 01
Interest on deposits	$2,129 15	
Interest on land sales in 1881	13,419 85	
Interest on land sales in former years	158,167 31	
Interest on U. S. bonds	32,730 00	
Interest on Missouri State bonds	51,480 00	
Interest on Minnesota State bonds	18,488 33	
Interest on deferred stumpage payments	427 26	
		$277,841 90
		$299,137 91

DISBURSEMENTS.

March apportionment to counties	$69,517 20	
October apportionment to counties	191,395 60	
Premium on $39,000 U. S. 4 per ct. bonds	4,972 50	
Refunded A. H. Brayton, interest paid on erroneous sale of SW. ¼ S. 16, T. 104, R. 4	67 88	
Premium on $26,000 Missouri 6 per ct. bonds	4,193 90	
Premium on $5,000 Missouri 6 per ct. bonds	706 25	
		$270,853 33
Balance Nov. 30, 1881		$ 28,284 58

Receipts for the year ending Nov. 30, 1882.

Interest on U. S. bonds	$14,350 00	
Interest on Missouri State bonds	38,430 00	
Sales of grass on school lands	1,233 07	
Interest on Minnesota State bonds	28,199 25	
Interest on Minnesota bonds redeemed	245 85	
Interest on deferred stumpage payments	1,117 25	

Interest on lands sold during the year	7,429 63	
Interest on sales of lands in former years	159,727 83	
		$250,732 88
		$279,017 46

DISBURSEMENTS.

Refunded G. O. Hickcox, for interest paid on erroneous sale of lot 1 and SE. ¼ SE. ¼ S. 36, T. 119, R. 31	$ 18 02	
Refunded W. W. Griswold, for interest paid on erroneous sale of lot 1 and SE. ¼ SE. ¼ S. 9, T. 124, R. 43	58 95	
Accrued interest on $401,000 Minnesota 4½ per ct. bonds	2,839 28	
Expenses on $262,000 Minnesota 4½ per ct. bonds from Cleveland	30 50	
March apportionment to counties	58,501 74	
October apportionment to counties	208,580 58	
		$270,029 07
Balance Nov. 30, 1882		$8,988 39

APPORTIONED SCHOOL FUND.

Balance in Treasury, Nov. 30, 1880		$193 36
March apportionment to counties	69,517 20	
October apportionment to counties	191,395 60	
		$260,912 80
		$261,106 16

DISBURSEMENTS.

Apportionment warrants redeemed during the year	$259,414 96
Balance Nov. 30, 1882	$ 1,691 20

Receipts for the year ending Nov. 30, 1882.

March apportionment	$ 58,501 74	
October apportionment	208,580 58	
		$267,082 32
		$268,773 52

DISBURSEMENTS.

Apportionment warrants redeemed during the year	$259,097 89
	$ 9,675 63

PERMANENT UNIVERSITY FUND.

Receipts for the year ending Nov. 30, 1881—

Balance in Treasury Nov. 30, 1880		$ 13,682 85
Sales of Pine Timber	$ 106 46	
Received from sales of Lands in 1881	6,589 68	

Received from sales of Lands in former years....	10,703 18	
Redemption of $15,000 Minnesota Bonds of 1873..	15,000 00	
Transfer from Internal Imp. Land Fund........	150 00	
		$ 32,549 32
Balance in Treasury Nov. 30, 1881..........		46,232 17

Receipts for the year ending Nov. 30, 1882—

Sale of $24,000 U. S. 4 per cent. Bonds cost.....	$ 24,000 00	
Sale of $5,000 U. S. 6 per cent. Bonds cost......	5,462 50	
Sale of $122,000 Mo. 6 per cent. Bonds cost......	122,096 00	
Profit on sale of $24,000 U. S. Bonds...........	3,726 00	
Profit on sale of $5,000 U. S. Bonds...........	982 50	
Profit on sale of $122,000 Mo. Bonds............	12,409 50	
Sales of Pine Timber........................	29,632 59	
Principal paid at Land Sales in 1882............	464 35	
Principal paid on sales of former years..........	12,027 50	
		$210,800 94
		257,033 11

DISBURSEMENTS.

Purchase of $241,000 Minn 4½ per cent.........	$ 241,000 00	
Refunded, Chap. 99, S. L. Ex. Sess. 1881	30 00	
		$241,030 00
Balance in Treusury Nov. 30, 1882...		16,003 11

GENERAL UNIVERSITY FUND.

Receipts for the year ending Nov. 30, 1881—

Balance in Treasury, Nov. 30, 1880,............		$ 25,238 63
Interest on U. S. bonds........................	$ 1,160 00	
Interest on Mo. bonds..........................	7,320 00	
Interest on Minn. bonds.......................	875 00	
Interest on deposits..........................	199 00	
Interest on deferred stumpage payments...	11 32	
Interest on sales of lands during the year.......	1,186 76	
Interest on sales of lands during former years....	19,027 13	
Received from State taxes.....................	23,650 09	
Transfer from In. imp. land fund...............	33 98	
		$53,463 28
		$78,701 91

DISBURSEMENTS.

Support of the University	$47,000 00
Balance Nov. 30, 1881........	$31,701 91

Receipts for the year ending Nov. 30, 1882.

Interest on U. S. bonds.......................	$ 390 00
Interest on Mo. bonds.........................	3,660 00
Interest on Minn. bonds.......................	5,422 50
Refunded by Regents.........................	2,000 00

Interest on deferred stumpage payments........	1,715 92	
Interest on sales of lands during the year........	167 99	
Interest on lands sold in former year...........	20,158 51	
Received from State taxes......................	1,177 28	
		$34,692 20
		$66,394 11

DISBURSEMENTS.

Support of University..........................	$43,881 41	
Refunded, Chap. 99, Sp. L. Ex. Sess. 1881......	12 72	
Loaned Regents for first payment on farm purchase....................................	10,000 00	
		$53,894 13
		$12,499 98

INTERNAL IMPROVEMENT LAND FUND.

Receipts for the year ending Nov. 30, 1881—

Balance in treasury Nov. 30, 1880.............		$20,714 75
Interest received on bonds of invested fund......	$9,500 00	
Interest received on deposits..................	333 66	
Sales of pine timber............................	1,616 10	
Principal paid at sales of land in 1881...........	21,851 00	
Principal paid on former sales..................	9,440 53	
Interest paid at sales of land in 1881............	6,164 14	
Interest paid on former sales...................	23,983 13	
Railroad right of way...........................	362 45	
		73,251 01
		$93,965 76

DISBURSEMENTS.

Transferred to permanent University fund.......	$150 00	
Transferred to general University fund..........	33 98	
Refunded John W. Boyd and F. W. Burnham, principal and interest paid on erroneous sale of NW¼ SE¼ S. 15, T. 132, R. 43........	41 80	
		225 73
lance Nov. 30, 1881		$93,739 98

Receipts for the year ending Nov. 30, 1882—

Principal paid at sales of lands in 1882..........	$3,810 74
Interest paid at sales of lands in 1882...........	3,434 94
Principal paid on former sales..................	23,387 39
Interest paid on former sales	29,397 84
Interest paid on bonds of invested fund.........	4,010 00
Sale of $108,000 U. S. registered 6 per cts, cost..	132,333 65
Sale of $1,000 Missouri 6 per cts, cost...........	1,144 50
Sale of $74,000 U. S. 4 per cts, cost.............	80,515 04
Profit on sale $108,000 U. S. registered 6 per, cts.	5,703 35
Profit on sale $74,000 U. S. 4 per cts............	4,973 46

Railroad right of way	16 68	
Sales of pine timber	498 25	
		294,225 84
		$387,965 82

DISBURSEMENTS.

Loss on sale of $1,000 Missouri 6 per cts	$ 55 50	
Purchase of $322,000 Minnesota 4 per cts	322,000 00	
		322,055 50
Balance in treasury Nov. 30, 1882		$65,910 32

Accumulations and investments of the permanent funds.

PERMANENT SCHOOL FUND.

ACCUMULATIONS.

Sales of land	$4,794,390 99
Amount paid on forfeitures, right of way, &c	34,675 07
Profits on sales of bonds	90,996 01
Sales of timber	452,264 16
	$5,372,326 23

INVESTMENTS.

$299,000 United States 6 per cent. currency	$305,410 05
$25,000 Minnesota 7 per cent. currency, loan of 1873	25,000 00
$61,000 Minnesota 6 per cent. currency, loan of 1878	61,000 00
$1,033,000 Minnesota 4½ per cent. railroad adjustment	1,033,000 00
$868,000 Missouri 6 per cent. currency	875,416 92
Land contracts bearing 7 per cent	2,898,769 49
Cash	104,172 54
Unpaid drafts	69,557 23
	$5,372,326 23

PERMANENT UNIVERSITY FUND.

ACCUMULATIONS.

Sales of ands	$462,573 10
Amount paid on lands forfeited and resold	3,932 50
Transfer from State Institutions fund	7,292 73
Railroad right of way	112 55
Sales of timber	134,095 78
Profit on sales of bonds	17,113 00
	$625,124 66

INVESTMENTS.

Minnesota 4½ per ct. Railroad Adjustment	241,000 00
Land contrats bearing 7 per ct	354,374 62
Unpaid drafts	3,937 83
Cash	16,003 11
Experimental farm	8,500 00
Fruit farm	1,309 10
	$625,124 66

INTERNAL IMPROVEMENT LAND FUND.

ACCUMULATIONS.

Sales of lands	$882,252 61
Interest on land contracts	149,006 74
Interest on bonds	33,227 50
Amount paid on lands forfeited and resold	386 19
Sales of pine timber	33,595 58
Interest on stumpage accounts	1,274 06
Interest on deposits	333 66
Profits on sales of bonds	10,621 31
Railroad right of way	379 13
	$1,111,076 78

INVESTMENTS.

Minnesota 4½ per cent. railroad adjustment	$322,000 00
Land contracts bearing 7 per cent	703,518 80
Unpaid drafts	19,647 66
Cash	65,910 32
	$1,111,076 78

Estimated receipts and expenditures for 1883 and 1884.

REVENUE FUND.

RECEIPTS, 1883.

State taxes	$315,000 00	
Insurance companies, taxes and fees	47,500 00	
From counties for inmates of Reform School	16,000 00	
Prison rent and labor	10,000 00	
Interest on deposits	10,000 00	
Miscellaneous	1,500 00	
		$400,000 00

EXPENDITURES.

Overdraft November 30, 1882	$142,810 36	
Executive	65,000 00	
Judicial	84,000 00	
Deficiencies, capitol and court of impeachment	160,000 00	
Legislative expenses	80,000 00	
Printing	35,000 00	
Printing laws and newspapers	20,000 00	
Extraordinary appropriations unexpended	100,000 00	
Miscellaneous expenses	80,000 00	
		$766,810 36

RECEIPTS, 1884.

State taxes	$320,000 00	
Insurance companies' taxes and fees	50.000 00	
From counties for inmates of Reform School	17,000 00	
Prison rent and labor	15,000 00	
Interest on deposits	10,000 00	
Miscellaneous	2,000 00	
		$414,000 00

EXPENDITURES.

Executive	$67,500 00	
Judicial	84,000 00	
Printing	15,000 00	
Miscellaneous	80,000 00	
		246,500 00
Estimated surplus		$167,500 00

STATE INSTITUTIONS FUND.

RECEIPTS—1883.

Railroad companies' taxes	$500,000 00	
Telegraph companies' taxes	5,000 00	
		5,000 00

EXPENDITURES.

Support of First Insane Hospital	$131,625 00	
Support of Second Insane Hospital	62,400 00	
Support of D. D. B. and Imbecile Institute	50,000 00	
Support of Prison	60,000 00	
Support of Reform School and deficiency	42,501 05	
Support of Normal school	33,000 00	
Support of Historical Society	4,000 00	
*Interest on Minn. 4½ per ct. R. R. Adj'st bonds	59,760 00	
		448,786 05
Estimated surplus		$56,723 95

RECEIPTS—1884.

Railroad companies' taxes	$550,000 00	
Telegraph companies' taxes	5,000 00	
		555,000 00

EXPENDITURES.

Support of First Insane Hospital	$141,375 00	
Support of Second Insane Hospital	72,800 00	
Support of D. D. B. and Imbecile Institute	60,000 00	
Support of Prison	65,000 00	
Support of Reform School	35,000 00	
Support of Normal Schools	38,000 00	
Support of Historical Society	4,000 00	
*Interest on Minn. 4½ per ct. R. R. Adj'st bonds	84,580 00	
		$500,755 00
Estimated surplus		$54,245 00

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*Interest on these bonds not included in these estimates will be paid from fund provided by Chap. 71, Gen. Laws Ex. Sess. 1881.

[*] INTEREST FUND.

RECEIPTS—1883.

Balance in treasury November 30, 1882..........	$6,818 17	
		$6,818 17

EXPENDITURES—1883.

Interest on Minnesota 7 per cent., 1873.........	$1,300 00	
Interest on Minnesota 6 per cent., 1878..........	3,489 00	
		$4,780 00
Estimated surplus....		$2,038 17

RECEIPTS—1884.

Surplus of 1883............	$2,038 17	
From delinquent taxes.......................	2,000 00	
		$4,038 17

EXPENDITURES—1884.

Interest on Minnesota 6 per cent., 1878.........		$3,000 00
Estimated surplus....		$1,038 17

ASSESSMENT AND TAXATION.

The taxable property of the State has increased during the last two years, as follows:

Increased acreage of land assessed in 1881....................	615,479 acres.
Increased acreage of land assessed in 1882....................	1,177,237 "
Total increase..	1,792,716 acres.
Increase in taxable value of broad acres, 1881.................	$2,769,498
Increase in taxable value of town and city lots, 1881..........	2,706,049
Increase in taxable value of personal property, 1881...........	7,267,871
Total increase........................	$12,743,418
Increase in taxable value of broad acres, 1882.................	$19,294,124
Increase in taxable value of town and city lots, 1882..........	25,790,539
Increase in taxable value of personal property, 1882...........	4,949,811
	$50.034,474
Total increase of taxable property during the two years.......	$62,777.892
Number of acres of land assessed in 1882.....................	19,608,026
Assessed value of broad acres, including structures and improvements, 1882..	$150,866,621
Assessed value of town and city lots, including structures, &c., 1882..	93,167,226
Total taxable value of real property for 1882..................	$244,033,847
Total taxable value of personal property for 1882..............	67,159,588
Total taxable value of all property.........................	$311,193,435

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[*] These estimates are based on the sinking fund estimate that delinquent taxes will be collected before July 1, 1883, sufficient to enable the treasury to redeem the $25,000, left of the loan of 1873.

STATE FINANCES.

The year closes with a deficit of $142,000 in the revenue fund. This is the amount expended under appropriations made at the extra session of the Legislature in 1881; for finishing the capitol and expenses of the session and the court of impeachment, $100,000 and $75,000, respectively, after deducting $31,000, the amount received from the general government on account of percentage on sales of lands included in the Winnebago and Sioux Indian reservations which was authorized to be expended on the capitol. The first appropriation for rebuilding the capitol provided for a levy of a tax sufficient to cover the appropriation. This tax was included in the State tax of 1881 and became available the present year. The expenditure on the capitol has largely exceeded the amount appropriated, and in order to keep the treasury in condition to meet ordinary expenses and enable it to pay the deficiencies in appropriations for the capitol and impeachment court expenses, it will be necessary to make a short loan of $190,000. The several trust funds can take a loan of that amount at a rate of interest not exceeding four and one-half per cent., until such time as tax levies can be realized upon. The tax levy for the coming year was limited to one mill, and the proceeds will be required to meet the ordinary expenses of the State and the appropriations for extraordinary expenses now on the books unexpended. All expenditures that could be deferred have been withheld in order to enable the treasury to meet the imperative demands upon it. In justice to the institutions having appropriations which the State has been unable to meet, no further extraordinary appropriations should be made without providing in the tax levies for the funds to meet them, and if such appropriations are made they should not be payable until such taxes can be collected. It is not good policy to make appropriations largely in excess of receipts, and then carry the excess with other funds. The revenue fund should be large enough to meet the expenditures from it, and if taxes are to be increased to meet extraordinary expenses, such expenses will be limited to actual necessities. The expenditures from the State Institutions fund during the two years have been larger than usual on account of the appropriations for buildings for the insane hospitals having been made from this fund, and the payment of interest due July 1, 1882, on the railroad adjustment bonds issued under the act of November 4, 1881. The payment of interest from this fund the coming year will not exceed $60,000, if the amendment proposed in chapter 71 of the general laws of the extra session is approved. The estimates show a small surplus which will be sufficient to make necessary repairs on the several buildings but will not admit any extensive enlargement or improvements of the present accommodations. A larger amount of this fund will be needed in 1884, to meet the interest on the bonds, and the estimates show a small surplus after providing for such interest. It was found during the past year that the fund would be so depleted that it would not be able to meet the interest payment falling due January 1, 1883, and an arrangement has been made with the Chicago, Milwaukee & St. Paul, St. Paul, Minneapolis & Manitoba and St. Paul & Duluth Railroad Companies, to advance in the latter part of December an aggregate of $60,000 of the taxes which will become due in February next, so that the State has been able to pay the current and other expenses of the institutions without regard to the liability for interest. A repetition of this is not advisable, even if it is possible, and all appropriations hereafter made from this fund should be subordinate to the charge for interest.

The Interest fund has a balance sufficient to redeem the coupons falling due in 1883 of the loans of 1873 and 1878.

The small amount ($25,000) remaining of the loan of 1873, will be redeemed the coming year, and the small interest charge on the balance of $61,000 of the Seed Grain loan of 1878, now unredeemed, can be met from the collections of delinquent taxes.

The distribution of delinquent and current taxes to the Sinking fund has enabled it to redeem the greater portion of the loan of 1873. In order to redeem the balance of $25,000 now outstanding a transfer of that amount can be made at once from the Forestry fund, as the balance in that fund is not needed to meet any demands upon it, the claims now in this office not exceeding five hundred dollars, and the levy for the coming year amounts to $31,000, of which, under the law controlling the fund only $20,000 can be distributed annually, and the current collections will be more than that sum before any more claims are preferred against it.

THE STATE DEBT.

The State Debt consists of the following series of bonds:

Balance of the seven per cent. building loan of 1873 due in 1883:	$25,000 00
Balance of the six per cent. Seed Grain loan of 1878 due in 1888:	61,000 00
Amount of four and one-half per cent. Railroad Adjustment bonds issued under act of Nov. 4, 1881, to redeem the heretofore unrecognized credit loan of 1858	4,253,000 00
Total bonded debt	$4,339,000 00

To this should be added $28,000, the amount of outstanding bonds of the issue of 1858 not returned for adjustment. These, if redeemed, will require a further issue of about $48,000 of four and one-half per cent. bonds.

Of the above loans the balance of the building loan will be redeemed the coming year, and the balance of the Seed Grain loan will be redeemed with the receipts from counties by repayment of loans to individuals, during the three years the loan has to run.

The annual interest charge on the issue of adjustment bonds, is $191,585. from which should be taken $14,490, the interest on $322,000 of the issue held by the Internal Improvement Land fund, which becomes a sinking fund for this issue, if the amendment proposed by Chapter 71 of the general laws of the extra session is adopted, which will reduce the interest charge to $177,095. The reduction after July, 1883, will be about $40,000 the first year, and this reduction for several years will be increased about $10,000 annually by receipts of principal on the outstanding contracts of these lands and new sales of the lands. The accumulation of interest in the Internal Improvement Land fund is now $183,841.96, which will pay the interest due July 1, 1883, and January 1, 1884, thus relieving the State Institutions fund of any charge on this account until July 1, 1884, when the Internal Improvement Land interest fund will have about $30,000 to apply on this account. After that the annual interest charge will not exceed $140,000, to be paid from the State Institutions fund, which sum will be gradually decreased as the bonds are redeemed.

ADJUSTMENT OF THE LOAN OF 1858.

The adjustment under the act approved November 4, 1881, of the heretofore unrecognized State debt of 1858 has added to the current interest bearing debt $4,253,000, of four and one-half per cent. bonds. This amount very nearly covers the entire demands on account of the old issue. The following statements and tables show the values, names of holders, etc., of the issue of 1858, which have been redeemed under the adjustment act, and the payments to claimants under the awards of the commission provided for by that act.

TABLE OF ISSUES BY NUMBER.

200	Bonds,	Nos.	1 to	200,	inclusive,	issued	to	Transit R. R. Co.
100	"	"	201 "	300,	"	"	"	Minneapolis & Cedar Valley R. R. Co.
200	"	"	301 "	500,	"	"	"	Southern Minnesota R. R. Co.
300	"	"	501 "	800,	"	"	"	Minneapolis & Cedar Valley R. R. Co.
400	"	"	801 "	1,200,	"	"	"	Minnesota & Pacific R. R. Co.
175	"	"	1,201 "	1,375,	"	"	"	Southern Minnesota R. R. Co.
100	"	"	1,376 "	1,475,	"	"	"	Transit R. R. Co.
100	"	"	1,476 "	1,575,	"	"	"	Minnesota & Pacific R. R. Co.
200	"	"	1,576 "	1,775,	"	"	"	Minneapolis & Cedar Valley R. R. Co.
200	"	"	1,776 "	1,975,	"	"	"	Transit R. R. Co.
100	"	"	1,976 "	2,075,	"	"	"	Minnesota & Pacific R. R. Co.
200	"	"	2,076 "	2,275,	"	"	"	Southern Minnesota R. R. Co.

COMPUTATION OF AMOUNTS DUE BONDHOLDERS AND CLAIMANTS ON EACH ISSUE.

	No. of coupons attached.	Value.	Percent'ge retained for claimants.	Deductions from bonds on account of claims.	Amount allowed bond holder.
Transit Bond	49	$1,898 92	.0772	$146 60	$1,752 32
M. & C. Valley Bond	49	1,898 92	.0618	117 35	1,781 57
M. & Pacific Bond	40	1,898 92	.0045	8 55	1,890 37
S. Minnesota Bond	49	1,898 92	.0008	1 52	1,897 40
Transit Bond	48	1,854 43	.0772	143 16	1,711 27
M. & C. Valley Bond	48	1,854 43	.0618	114 60	1,739 83
M. & Pacific Bond	48	1,854 43	.0045	8 34	1,846 09
S. Minnesota Bond	48	1,854 43	.0008	1 48	1,852 95

And corresponding amounts when a less number of coupons accompanied the bonds

TABLE OF VALUES.

BONDS.

1	Coupon off.	Value of bond	$1,898 92 33
2	" "	" "	1,854 43.26
3	" "	" "	1,810 54 85
4	" "	" "	1,767 27 68
5	" "	" "	1,724 61 72
6	" "	" "	1,682 57.00
7	" "	" "	1,641 13 69
8	" "	" "	1,600 31 52
9	" "	" "	1,560 10.61
10	" "	" "	1,520 50.94
11	" "	" "	1,481 52.53
12	" "	" "	1,443 15 36
13	" "	" "	1,405 39.45
14	" "	" "	1 368 24 78
15	" "	" "	1,331 71.37
16	" "	" "	1,295 79 20
17	" "	" "	1,260 48.29
18	" "	" "	1,225 78.62
19	" "	" "	1,191 70.21

Table of Values—Continued.

COUPONS.

No. of Coupon.	WHEN DUE.	Time from due to Nov. 4, 1881.			Amo'nt of Coupon	Interest at 7 per cent. to Nov. 4. 1881, and at 5 per cent. from Nov. 4. 1881, to Jan. 1, 1882.
		Years	M'ths	Days		
2	December 1, 1859	21	11	3	$35 00	$53 99 33
3	June 1, 1860	21	5	3	35 00	52 76 83
4	December 1, 1860	20	11	3	35 00	51 54 33
5	June 1, 1861	20	5	3	35 00	50 31.83
6	December 1, 1861	19	11	3	35 00	49 09 33
7	June 1, 1862	19	5	3	35 00	47 86.83
8	December 1, 1862	18	11	3	35 00	46 64.33
9	June 1, 1863	18	5	3	35 00	45 41.83
10	December 1, 1863	17	11	3	35 00	44 19.33
11	June 1, 1864	17	5	3	35 00	42 96.83
12	December 1, 1864	16	11	3	35 00	41 74.33
13	June 1, 1865	16	5	3	35 00	40 51.83
14	December 1, 1865	15	11	3	35 00	39 29 33
15	June 1, 1866	15	5	3	35 00	38 06 83
16	December 1, 1866	14	11	3	35 00	36 84.33
17	June 1, 1867	14	5	3	35 00	35 61.83
18	December 1, 1867	13	11	3	35 00	34 39.33
19	June 1, 1868	13	5	3	35 00	33 16 83
20	December 1, 1868	12	11	3	35 00	31 94 33
21	June 1, 1869	12	5	3	35 00	30 71.83
22	December 1, 1869	11	11	3	35 00	29 49 33
23	June 1, 1870	11	5	3	35 00	28 26 83
24	December 1, 1870	10	11	3	35 00	27 04 33
25	June 1, 1871	10	5	3	35 00	25 81 83
26	December 1, 1871	9	11	3	35 00	24 59 33
27	June 1, 1872	9	5	3	35 00	23 36 83
28	December 1, 1872	8	11	3	35 00	22 14 33
29	June 1, 1873	8	5	3	35 00	20 91 83
30	December 1, 1873	7	11	3	35 00	19 69 33
31	June 1, 1874	7	5	3	35 00	18 46.83
32	December 1, 1874	6	11	3	35 00	17 24.33
33	June 1, 1875	6	5	3	35 00	16 01 83
34	December 1, 1875	5	11	3	35 00	14 79 33
35	June 1, 1876	5	5	3	35 00	13 56 83
36	December 1, 1876	4	11	3	35 00	12 34 33
37	June 1, 1877	4	5	3	35 00	11 11.83
38	December 1, 1877	3	11	3	35 00	9 89 33
39	June 1, 1878	3	5	3	35 00	8.66.83
40	December 1, 1878	2	11	3	35 00	7 44 33
41	June 1, 1879	2	5	3	35 00	6 21.83
42	December 1, 1879	1	11	3	35 00	4 99 33
43	June 1, 1880	1	5	3	35 00	3 76 83
44	December 1, 1880	..	11	3	35 00	2 54.33
45	June 1, 1881	..	5	3	35 00	1.31.83
46	December 1, 1881	...	...	...	35 00	14.58
47	June 1, 1882	...	...	...	35 00	02 43

BONDS REDEEMED.

Name of Holder.	NO. OF BONDS OF EACH CO. RETURNED.				VALUE OF BOND.				DEDUCTIONS ON ACCOUNT OF CLAIMS.				DETACHED COUPONS.		Amount Paid.
	Transit.	M. & C. V.	M. & P.	S'th Min.	Transit.	Minnesota & Cedar Valley.	Minnesota & Pacific.	Southern Minnesota	Transit.	Minn. & C. V.	Minn. & Pacific	South Minn.	Value.	Deductions.	
Allen, C. H			1		$	$	$ 1,898 92	$	$	$	$ 8 55	$	$	$	$ 1,890 37
Amy, H. & Co		10				18,989 29				1,173 54					17,815 75
Alexander, W. N.		2				3,797 84				234 71					3,563 13
Alexander, E. S.	121	72	15	6	229,551 63	134,499 48	28,003 64	11,126 59	17,721 39	8,312 06	126 02	8 90	44 49	2 74	377,054 72
Beach, James	1				1,405 39				108 50						1,296 89
B'k, 1st Nat. Dubuque	1	17			1,898 92	32,237 29			146 60	1,992 27					31,997 34
B'k, State Nat. Minn.		1				1,898 92				117 35					1,781 57
B'k, 1st Nat. St. Paul.	4	14	2		7,417 72	26,585 00	3,449 23		572 64	1,642 94	15 52		737 97	52 86	35,905 96
Boyd C		1				1,854 43				114 60					1,739 83
Bomp, E			1				1,854 43				8 34		133 47	3 15	1,976 41
Bassett, D		1				1,898 92				117 35					1,781 57
Burchard, H. M	3				5,696 78				439 79						5,256 99
Burden, Geo	5	1			9,494 60	1,898 92			732 98	117 35					10,543 19
Blatchford, E. W	5				9,494 64				732 99						8,761 65
Berry, C. H	1				1,767 27				136 43						1,630 84
Blakely, R	1				1,898 92				146 60						1,752 32
Brown, M		4				7,595 71				469 41					7,126 30
Buchoz, A. J	2				3,120 21				240 88						2,879 33
Brower, A. G.		3				5,431 64				335 68					5,095 96
Benedict, E. C		1				1,898 92				117 35					1,781 57
Bernheimer, I			5				9,494 64				42 73				9,451 91
Bostwick, H. V.		2				3,708 86				22 92					3,685 94
Bailey, E. H	4				7,595 71				586 39						7,009 32
Butler, W. A	10				17,442 53				1,346 56						16,095 97
Blackstone, Jos		1				1,898 92				117 35					1,781 57
Constans, H				1				1,854 43				1 48			1,852 95
Cannon, R. M		5				9,494 64				586 77					8,907 87
Cole, R		1				1,898 92				117 35					1,781 57
Campbell, A	2	2	1		3,708 86	3,797 85	1,898 92		286 32	234 71	8 55				8,876 05
Cheritree, A. F.		10				17,672 76				1,092 18					16,580 58
Causin, N. P.		1				1,898 92				117 35					1,781 57
Carpenter, C. C.		1				1,898 92				117 35					1,781 57
Corwith, N		6	4			11,393 57	7,375 05			704 12	33 19		131 60	59	18,162 32

BONDS REDEEMED—*Continued.*

NAME OF HOLDER.	NO. OF BONDS OF EACH COM. RETURNED.				VALUE OF BOND.				DEDUCTIONS ON ACCOUNT OF CLAIMS.				DETACHED COUPONS.		Amount Paid.
	Transit.	M & C. V.	Minn & Pa	South. Min	Transit.	Minnesota and Cedar Valley.	Minnesota & Pacific.	Southern Minnesota.	Transit.	Minn. and Cedar Valley.	Minn. and Pacific.	Southern Minnesota.	Value.	Deductions.	
Corwith, H	5	3	4	1	$ 9,272 75	$ 5,696 78	$ 7,506 70	$ 1,854 43	$ 715 86	$ 352 06	$ 33 78	$ 1 48	$14 49	$3 43	$23,268 51
Cook. F. S.	8				14,926 28				1,152 31						13,773 97
Campbell. J. C	1				1,898 92				146 60						1,752 32
Curtis, C B		2				3,797 84				234 70					3,563 14
Coddington. T. B	7		25		12,981 01		47,174 61		1,002 13		212 29		2,417 40	36 89	61 351 71
Chamberlain, S.	28	90	449	503	52,903 03	172,167 90	850,112 31	932,779 59	4,084 11	10,639 98	8,825 51	746 22	3,603 40	216 71	1,992,053 70
Dike W. S.		4				7,595 71				469 41					7,126 30
Donnhower&Edgerton		1				1,898 92				117 35					1,781 57
Dodge, S. A	2	4			3,708 86	7,417 72			286 32	458 42					10,381 84
Douglass. Geo		1				1,898 92				117 35					1,781 57
Davidson, W. F			1				1,854 43				8 34				1,846 09
Dean. A. J. (Trustee)	17				32,281 79				2,492 15						29,789 64
Edgerton, E S		9				17,090 36				1,056 18					16,034 18
Emerson. J. M		1				1,898 92				117 35					1,781 57
Evans. D	3				5,696 78				439 79						5,256 99
Farwell, F. B		10				17,672 76				1,092 18					16,580 58
Flint J. G				1				1,854 43				1 48			1,852 95
Frary S F		1				1,898 92				117 35					1,781 57
Ford, W. G													291 91	18 23	276 68
Garloch, W H	2				3,797 84				293 19						3,504 65
Gilman, J. M. (Trustee)	2				3,797 84				293 20				88 98	6 40	3,587 22
Gebhardt, W			5	2			9,450 14	3,708 86			42 53	2 97			13,113 50
Greeve, H	26	11	3		48,927 18	20,621 22	5,696 78		3,777 17	1,274 38	25 63				70,168 00
Gorham, A. S.	52	47	18	8	97,948 88	88,772 4[illegible]	83,470 59	14,835 46	7,561 65	5,486 14	150 62	11 87	5[illegible]5 60	36 57	222,[illegible]96 18
Hammond. H	3				5,563 29				429 49						5,133 80
Hartford Fire Ins. Com			2				3,797 84				17 09				3,780 75
Holstein, E. V	2				3,708 86				286 32						3,422 54
Hatch, Benson & Allen			1				1,898 92				8 55				1,890 37
Hendricks, J			2				3,797 84				17 09				3,780 75
Harwood, H. W.		2				3,449 23				213 16					3,236 07
Hale. W. B	3	4		3	5,696 78	7,462 21		5,563 29	439 79	461 17		4 45			17,816 87
Handy Margaret		1				1,898 92				117 35					1,781 57
Hewitt, Allie		2				3,797 84				284 71					3,563 13

BONDS REDEEMED—*Continued.*

NAME OF HOLDER.	NO OF BONDS OF EACH COM. RETURNED.				VALUE OF BOND.				DEDUCTIONS ON ACCOUNT OF CLAIMS.				DETACHED COUPONS.		Amount Paid.
	Transit.	M. & C. N.	Minn. & Pa	Son'h, Min.	Transit.	Minnesota and Cedar Valley.	Minnesota & Pacific.	Southern Minnesota.	Transit.	Minn. and Cedar Valley.	Minn. and Pacific.	South-ern Minne-sota.	Value.	Deduc-tions.	
Horton, L. S	1	...	...	...	1,892 92	....	....	....	$ 146 60	....	....	....	....	....	$ 1,746 32
Henry, J. A	...	1	...	...	....	1,898 92	....	....	....	117 35	....	....	....	....	1,781 57
Irvine, N	...	3	...	...	....	5,696 78	....	....	....	352 06	....	....	....	....	5,344 72
Irwin, R	...	1	...	...	....	1,898 92	....	....	....	117 35	....	....	....	....	1,781 57
Ingersoll, D. W	...	4	...	...	....	7,593 70	....	....	....	469 41	....	....	....	....	7,124 29
Johnson, S. W	...	2	...	...	....	3,797 85	....	....	....	234 71	....	....	....	....	3,563 14
Kent, E. & A. admr's.	...	5	16	...	....	9,491 64	30,249 34	....	....	586 77	136 12	....	....	....	39,021 09
Knox, J. J. estate	6	11	3	...	11,215 58	20,813 72	5,652 28	....	865 84	1,288 14	25 44	....	....	....	35,502 16
Knox, W. E.	...	1	...	1	....	1,898 92	....	1,854 43	....	117 35	....	1 48	....	....	3,634 52
Knox, J. C	...	1	...	...	....	1,898 92	....	....	....	117 35	....	....	....	....	1,781 57
Knox, C. E	...	1	...	...	....	1,898 92	....	....	....	117 35	....	....	....	....	1,781 57
Law, R	6	...	...	...	11,393 57	....	....	....	879 58	....	....	....	....	....	10,513 99
Langford, N. P	...	...	...	...	....	....	....	....	....	....	....	....	398 58	24 63	373 95
Lee, W. W.	...	1	...	...	....	1,898 92	....	....	....	117 35	....	....	....	....	1,781 57
Loomis, Geo.	...	2	2	...	....	3,797 85	3,753 35	....	....	234 71	16 89	....	....	....	7,299 60
Lamberton, H. W	29	...	...	...	51,225 94	....	....	....	4,186 24	....	....	....	444 28	34 29	47,449 69
Loyhed, E. H	...	1	...	...	....	1,898 92	....	....	....	117 35	....	....	....	....	1,781 57
Litchfield, E. D.	...	...	10	...	....	....	18,989 29	....	....	....	85 45	....	....	....	18,903 84
Lyon, A. M.	2	...	...	...	3,797 84	....	....	....	298 20	....	....	....	....	....	3,499 64
Losey, D.	...	1	...	...	....	1,810 54	....	....	....	111 89	....	....	....	....	1,698 65
Laird, Norton & Co	3	...	...	...	5,652,27	....	....	....	436 36	....	....	....	....	....	5,215 91
McIlrath, Chas	...	1	...	...	....	1,898 92	....	....	....	117 35	....	....	....	....	1,781 57
Mott, Laura	...	3	...	...	....	5,696 78	....	....	....	352 06	....	....	....	....	5,344 72
Miner, U. H	...	1	...	...	....	1,898 92	....	....	....	117 35	....	....	....	....	1,781 57
Miller, C.	...	1	...	...	....	1,898 92	....	....	....	117 35	....	....	....	....	1,781 57
Mallory, F. J.	...	2	...	...	....	3,797 85	....	....	....	234 71	....	....	....	....	3,563 14
Merrill, H. B	...	4	...	...	....	7,595 71	....	....	....	469 41	....	....	....	....	7,126 30
Manson, W.	...	1	...	...	....	1,898 92	....	....	....	117 35	....	....	....	....	1,781 57
Merriam, W. R.	...	1	...	...	....	1,898 92	....	....	....	117 35	....	....	....	....	1,781 57
Meagher, J. F.	5	4	4	...	9,361 22	7,595 68	7,551 19	....	722 68	469 41	33 98	....	222 45	6 77	23,497 70
Martin, E	...	...	6	...	....	....	11,393 57	....	....	....	51 27	....	....	....	11,342 30
Nelson, R. R.	...	...	...	...	....	....	....	....	....	....	....	....	220 63	99	219 64
Newell, G. (Trustee)	...	2	...	...	....	3,797 85	....	....	....	234 71	....	....	....	....	3,563 14

BONDS REDEEMED—*Continued.*

NAME OF HOLDER.	NO. OF BONDS OF EACH CO. RETURNED.				VALUE OF BONDS.				REDUCTIONS ON ACCOUNT OF CLAIMS				DETACHED COUPONS.		Amount Paid.
	Transit.	M. & C. V.	M. & P.	S'th M.	Transit.	Minn. & C. V.	Minn. & Pacific.	Southern Minnesota	Transit.	Minn. & Cedar Valley.	Minn. & Pacific.	South. Minn.	Value.	Deductions.	
North, J. W			1				$ 1,898 92				$ 8 55				$ 1,890 37
Oelrichs & Co		1				$ 1,898 92				$ 117 35					1,781 57
Oakes, Julia B		2	1			3,797 84	1,898 92			234 71	8 55		$133 47	$ 60	5,586 37
Paquin, L. E													88 98	5 50	93 48
Pettit, G. F		1				1,898 92				117 35					1,781 57
Paine, R. E		1				1,898 92				117 35					1,781 57
Perry, W. D		1		2		1,898 92		$3,708 86		117 35		$ 2 97			5,487 46
Reed, L. E	1				$ 1,898 92				$ 146 60						1,752 32
Randall, J. J	1				1,898 92				146 60				308 41	23 81	2,036 92
Richards, B. B		1				1,898 92				117 35			222 45	17 17	1,986 85
Squires, Mary E		4				7,595 71				469 41					7,126 30
Smith, S. M	2			2	3,708 86			3,708 86	286 32			2 97			7,128 43
Smith, F. E		20	1			37,890 19	1,854 43			2,341 61	8 34				37,394 67
Smith, W		4				7,595 71				469 41					7,128 30
Sullivan, R.		2				3,797 85				234 71					3,563 14
Simpson, V	2				3,753 35				289 76						3,463 59
Sand, Wm. G		2				3,797 85				234 71					3,563 14
Steele, F. (executors)				1				1,854 43				8 34			1,846 09
Sellow, W		1				1,898 92				117 35					1,781 57
Stimson, L. A		1				1,898 92				117 35					1,781 57
Sibley, H (trustee)			2				3,708 86				16 69				3,692 17
Smith, H. W	5				9,272 16				715 81						8,556 35
Sinclair, D													88 99	6 87	82 12
Smith, J. A			1				1,898 92				8 55		44 49	20	1,934 66
Strong, O. D		6		1		11,393 57		1,854 43		704 12		1 48			12,542 40
Trimble, M		1		1		1,898 92		1,854 43		117 35		1 48			3,634 52
Temple, W. H	22	17	4	1	41,331 45	32,148 90	7,462 21	1,854 43	3,190 79	1,986 80	33 58	1 48	43 88	3 39	77,624 83
Upham, H. P	1				1,898 92				146 60						1,752 32
Von Glahn, M		30				56,967 87				3,520 61					53,447 26
Vermilye & Co													133 47	3 15	130 32
Van Duzee, E. M	2	9	1		3,708 86	17,090 37	1,767 27		286 32	1,056 18	7 95		218 78	13 52	21,421 31
Williams, M. M	1				1,898 92				146 60						1,752 32

BONDS REDEEMED—*Continued.*

NAME OF HOLDER.	NO OF BONDS OF EACH COMPANY RETURNED.				VALUE OF BONDS.				REDUCTIONS ON ACCOUNT OF CLAIMS				DETACHED COUPONS.		Amount Paid.
	Transit.	M. & C.V.	M. & P.	S'th M.	Transit.	Minnesota & Cedar Valley.	Minnesota & Pacific.	Southern Minnesota	Transit.	Minn. & Cedar Valley.	Minn. & Pacific.	Southern Minn.	Value.	Deductions.	
Willius, F. & G.		3	2			$ 5,696 78	$ 3,797 84			$ 352 05	$ 17 09				$ 9,125 48
Willius, F		2				3,797 84				234 71					3,563 13
Washburn, E. (recei'r)		3				5,696 78				352 06					5,344 72
Watson, D. T		1		1		1,898 92		1,854 43		117 35		$ 1 48			3,634 52
Warren & Pierson (ex)	1	6			$ 1,898 92	11,349 07			146 60	701 37					12,400 02
Welles, H. T.		1				1,898 92				117 35					1,781 57
Wells, D., Jr.	22	2		40	41,331 46	3,797 85		74,177 30	3,190 79	234 71		59 34			115,821 77
Webb, S. B.		1				1,898 92				117 35					1,781 57
Warner, J.		11				20,621 23				1,274 39					19,346 84
Wallace, F. B.		4	1			7,506 71	1,854 43			466 92	8 34				8,885 88
Walsh, J. R.	6				11,393 52				879 58						10,513 94
Woolford, W. L.		1				1,898 92				117 35					1,781 57
Woodbury, J. P.		1				1,767 27				109 21					1,658 06
Yale, W. H.													$ 133 47	10 31	123 16
Totals.	439	544	595	574	$ 825,142 87	$1,026,690 76	$1,122,465 81	$1,066,298 68	$63,701 02	$63,246 03	$ 5,051 12	$ 859 87	10 [illegible]	$ 528 77	$ 3,917,955 95
Deduct's from bonds and coupons ($528.77) an acc't of claims distrib'd to prop'r roads									422 27	89 31	17 19				
Total deductions									$64,128 29	$63,335 34	$ 5,068 31	$ 859 87			

BONDS REDEEMED—*Continued.*

DATE OF DEPOSIT.	DEPOSITED BY	No. bonds of e'ch Co. returned.				Amount paid depositors on account of bonds.	No. detach'd coupons returned			Amount paid depositors on account of coupons.	Deductions on account of claims, (Bonds and coupons).				Amount Paid.
		Transit.	Min'apolis & Cedar Valley	Minnesota & Pacific.	Southern Minnesota.		Transit.	M. & C. V.	M. & P.		Transit.	Minneapolis and Cedar Valley	Minnesota and Pacific.	Southern Minnesota.	
March 1, 1882.	Bailey, E. H	3	3	...	...	$10,601 67	...	...	...	...	$ 439 80	$352 05	...	...	$11,393 52
March 15, 1882.	Broderick, M. T.	1	...	...	...	1,752 32	...	...	...	...	146 60	...	...	...	1,898 92
March 29, 1882.	Bank, 1st National, St. Paul.	...	...	...	...	...	2	...	...	$ 82 11	6 87	...	...	...	88 98
May 6, 1882.	Baxter, S. D. P	...	1	...	...	1,781 57	...	...	...	...	...	117 35	...	...	1,898 92
Sept. 30, 1882.	Bank, Merchants National	...	...	1	...	1,716 85	...	...	...	...	...	...	$7 76	...	1,724 61
March 2, 1882.	Cobb, Nathan B	...	1	...	...	1,781 57	...	...	...	...	...	117 35	...	...	1,898 92
April 1, 1882.	Cogswell, C. P	10	...	...	...	17,523 20	...	...	...	...	1,466 00	...	...	...	18,989 20
Sept. 8, 1882.	Chaffee, Henry	...	1	...	...	1,781 57	...	...	...	...	...	117 35	...	...	1,898 92
March 1, 1882.	Deys, R. E. and John	4	...	...	...	6,845 08	...	...	...	...	572 64	...	...	...	7,417 72
March 2, 1882.	Dike, W H	...	1	...	...	1,781 57	...	...	...	...	...	117 35	...	...	1,898 92
March 10, 1882.	Drexel & Co	...	1	...	...	1,781 57	...	...	...	...	...	117 35	...	...	1,898 92
Aug. 24, 1882.	Evans, A. L	...	...	...	...	...	2	...	...	79 30	6 63	...	...	...	85 93
Aug. 28, 1882.	Edgerton, E. S	...	4	...	...	7,126 28	...	...	...	...	...	469 40	...	...	7,595 68
March 1, 1882.	Fitzgerald, John	...	1	...	...	1,781 57	...	...	...	...	...	117 35	...	...	1,898 92
June 21, 1882.	Fenno Isaac	1	1	...	...	3,451 10	...	...	...	...	143 16	114 60	...	...	3,708 80
June 23, 1882.	Funk Herman	...	5	...	...	8,907 85	...	...	...	...	...	586 75	...	...	9,494 60
July 3, 1882.	Farwell C B	1	...	...	...	1,752 32	...	...	...	...	146 60	...	...	...	1,898 92
March 9, 1882.	Gebhard Wm H	18	...	...	...	31,541 83	...	...	...	...	2,638 73	...	...	...	34,180 56
June 21, 1882.	Horton Sam'l	...	4	...	...	7,126 28	...	...	...	...	...	469 40	...	...	7,595 68
March 1, 1882.	Jackson W T	5	...	...	...	8,761 60	...	...	...	...	733 00	...	...	...	9,494 60
March 17, 1882.	Jackson W T	1	...	...	...	1,752 32	...	...	...	...	146 60	...	...	...	1,898 92
March 15, 1882.	Jackson W H	1	...	...	...	1,752 32	...	...	...	...	146 60	...	...	...	1,898 92
March 30, 1882.	Jackson H B	1	...	...	...	1,752 32	...	...	...	...	146 60	...	...	...	1,898 92
April 21, 1882.	Kirk W D	...	2	...	...	3,563 14	...	1	...	39 44	...	237 30	...	...	3,839 88
March 1, 1882.	Marvin W K	...	1	...	...	1,781 57	...	...	...	...	...	117 35	...	...	1,898 92
March 27, 1882.	Mearkle E T Tr Hamlin Univ.	...	...	...	...	...	...	13	25	1,587 65	...	33 92	4 83	...	1,626 42
May 3, 1882.	McKone T	...	1	...	...	1,249 41	...	...	...	...	...	82 30	...	...	1,331 71
Oct. 2, 1882.	Ninde Thos	...	...	...	...	...	...	9	...	339 51	...	22 36	...	...	361 87
March 10, 1882.	Otto Wm T	...	2	...	...	3,563 14	...	...	...	...	...	234 70	...	...	3,797 84
March 1, 1882.	Pulling H P	1	...	...	...	1,752 32	...	...	...	...	146 60	...	...	...	1,898 92

BONDS REDEEMED—*Continued.*

DATE OF DEPOSIT.	DEPOSITED BY	No. Bonds of each Company Returned.				Amount paid depositors on account of bonds.	No detach'd Coupons Returned.			Amo'nt paid depositors on account of coupons.	Deductions on Account of Claims, (Bonds and Coupons.)				Total Value Redeemed.
		Transit.	Min'apolis & C. V.	Minnesota & Pacific	Southern Minnesota.		Transit.	M. & C. V.	M. & P.		Transit.	Minneapolis & Cedar Valley.	Minnesota & Pacific.	Southern Minnesota.	
March 17, 1882.	Sackett H S	1	...	..	...	1,752 32	...	...	...	....	146 60	... .	....	....	1,898 92
March 15, 1882.	Weed H V	1	..	....	...	1,752 32	...	...	....	....	146 60	....	....	....	1,898 92
Aug. 4, 1882....	Woodbury Louisa A	....	1	...	...	1,389 96	...	..	....	....	......	91 56	....	....	1,481 52
	Red'med under Gov Hubbard	49	30	1		$ 139,856 94	4	23	25	$ 2,128 01	$ 7 179 63	$ 3,515 79	$ 12 61	.....	$ 152,692 98
	" " Gov Pillsbury	439	544	595	574	3,907,211 31	125	33	47	10,744 64	64,123 29	63,335 34	5,068 31	$859 87	4,051,342 76
	Totals.	488	574	596	574	$4,047,068 25	129	56	72	$12,872 63	$71,302 92	$66,851 13	$5,080 92	$859 87	$4,204,035 74

Amount of claim of McDonald and Graham as all owed under Act March 9, 1867	$ 47,868 81
Amount of claim of Fitz Grindall and Keepers as all owed under Act March 9, 1867	5,219 85
Total amount of bonds and claims adjusted under Act of November 4, 1881	4,257,121 40
Amount of bonds issued in settlement under Act of November 4, 1881	4,253,000 00
Balance retained by State for distribution among claimants	4,124 40

In addition to above the State held fifteen of the issue to M. & C. V. R. R. Co., to which no value was affixed.

REPORT

OF THE

CLAIMS COMMISSION,

UNDER ACT OF NOVEMBER 4TH, 1881.

We, the Commissioners appointed to consider and pass upon the claims referred to and provided for in Section Four (4) of an act of the Legislature of the State of Minnesota, entitled "An Act providing for the adjustment of certain alleged claims against the State, approved Nov. 4th, A. D. 1881, do hereby certify and report:

That on the twenty-first day of November, A. D. 1881, in pursuance of a notice theretofore duly given and published (a copy of which is hereto attached marked Exhibit "A" and made a part hereof) we met at the Governor's rooms in the Market House in the city of St. Paul in Ramsey county, Minnesota, for the purpose of hearing and considering the said claims, and continued from day to day, as our other public duties permitted, hearing evidence and considering said claims until the 30th day of December, A. D. 1881.

There were filed in accordance with said act, and considered and diposed of by us the number of claims following to wit:

One hundred and thirty-nine claims against the Transit Railroad Company, one hundred and one claims against the Minneapolis and Cedar Valley Railroad Company, thirty-two claims against the Minnesota and Pacific Railroad Company and fourteen claims against the Southern Minnesota Railroad Company, making an aggregate of 286 claims.

The total amount allowed by us including interest as provided in said act, is the sum of three hundred and seven thousand, nine hundred and fifty-seven and 36-100 dollars. Of this sum there was allowed on claims filed against the Transit Railroad the sum of one hundred and forty-seven thousand, two hundred and thirteen and 20-100; on claims against the Minneapolis and Cedar Valley Railroad the sum of one hundred and forty-eight thousand, two hundred and eight and 68-100; on claims against the Minnesota and Pacific Railroad the sum of ten thousand, seven hundred and forty and 36-100 dollars; and on claims against the Southern Minnesota Railroad, the sum of seventeen hundred and ninety-five and 12-100 dollars.

Schedule "B" hereto attached and made a part hereof, contains a statement of the amounts allowed by us on claims against the Transit Railroad Company, the names of the claimants, the amounts claimed in their respective petitions, the amount allowed each claimant, the said allowance with interest added, the fifty per cent. of said claim and interest and the amount payable to each under the terms of said act.

Schedule "C" hereto attached and made a part of this report contains a similar statement of claims against the Minneapolis and Cedar Valley Railroad.

Schedule "D" hereto attached and made a part of this report contains a similar statement of claims against the Minnesota and Pacific Railroad.

Schedule "E" hereto attached and made a part of this report contains a similar statement of claims against the Southern Minnesota Railroad.

Schedule "F" hereto attached and made a part of this report contains a statement of the names of petitioners and of the amounts claimed in their respective petitions of all claims considered and disallowed in toto by us.

Schedule "G" hereto attached contains a statement of claims withdrawn, or on which no evidence was offered.

In testimony whereof we have hereunto set our hands at the City of St. Paul, Ramsey county, Minnesota, this thirty-first day of December, A. D. 1881.

J. S. PILLSBURY,
O. P. WHITCOMB, } Commissioners.
W. J. HAHN,

SCHEDULE "A."

NOTICE TO CLAIMANTS UNDER BOND ACT.

To all whom it may concern:

Notice is hereby given that under and pursuant to the provisions of an act of the Legislature of the State of Minnesota, entitled "An act providing for the adjustment of certain alleged claims against the State," approved November 4, 1881, in and by which the undersigned were constituted a commission to consider and pass upon the claims therein referred to, a meeting will be held by said commission to hear and consider such claims on November 21, 1881, at 2 o'clock P. M., at the Market House in St. Paul, Minnesota. All persons are hereby further notified that under the provisions of said act, all claims must be filed in the office of the State Auditor within thirty days after November 4, 1881.

J. S. PILLSBURY,
O. P. WHITBOMB, } Commissioners.
W. J. HAHN.

SCHEDULE "B."

CLAIMS AGAINST TRANSIT R. R. CO.

NAME OF CLAIMANT.	Amount of Claim.	Amount Allowed.	Amount of Claim and Interest.	Amount less 50 per cent.	Amount, less Excess of Appropriation, 5 per cent.	Amount less deduction for Outstanding Bonds, 15 per cent.	Second Dividend Allowed 70 per cent. Payment on balance due.
Agan, Patrick	$ 187 00	$ 63 00	$ 157 50	$ 78 75	$ 74 81	$ 63 59	$ 7 85
Arntson, John	120 80	117 00	292 50	146 25	138 94	118 11	14 58
Baldwin, A.	1,442 74	555 72	1,389 30	694 65	659 92	560 94	69 29
Benson, Delphine	2,000 00	300 34	750 85	375 47	356 70	303 19	37 46
Boardman, C. L.	1,015 56	665 56	1,663 90	831 95	790 35	671 79	83 00
Beardsley, G. E.	130 00	65 00	162 50	81 25	77 19	65 61	8 11
Bowler, Michael	69 7	30 00	75 00	37 50	35 62	30 28	3 74
Cockrell, F. M.	4,283 89	2,558 02	6,395 05	3,197 52	3,037 61	2,582 00	318 95
Cole, Chas C.	2,263 00	1,131 50	2,828 75	1,414 37	1,343 65	1,142 11	141 08
Crippen, John	715 38	715 38	1,788 45	894 22	849 51	722 09	89 19
Chisholm, Alexander	346 00	150 00	375 00	187 50	178 12	151 41	18 70
Clark, Henry M.	825 00	825 00	2,062 50	1,031 25	979 69	832 74	102 86
Cory, J. C.	229 73	229 73	574 32	287 15	272 80	231 88	28 64
Curtis, R. G.	861 60	861 60	2,154 00	1,077 00	1,023 15	869 68	107 43
Campion, John	121 29	44 29	110 72	55 36	52 60	44 71	5 52
Campion, Daniel	69 25	35 00	87 50	43 75	41 57	35 35	4 35
Chappell, Thomas	163 69	163 69	409 22	204 61	194 38	165 24	20 40
Cone, R. D.	878 71	811 85	2,029 62	1,014 81	964 07	819 47	101 22
Cook, David and G. C.	97 50	75 00	187 50	93 75	89 06	75 71	9 34
Campion, Michael, jr.	68 00	41 65	104 12	52 06	49 46	42 03	5 20
Campion, John (2d)	87 00	33 50	83 75	41 87	39 78	33 81	4 18
Clark, John	89 11	84 16	210 40	105 20	99 91	84 96	10 49
Campion, Daniel (2d)	46 75	29 75	74 37	37 18	35 32	30 02	3 71
Chadwick, Avery	900 00	829 86	2,074 65	1,037 32	985 45	837 64	103 46
Carson, Eaton & Co.	2,533 28	2,533 28	6,333 20	3,166 60	3,008 27	2,557 04	315 86
Cook, Frances C.	1,834 23	1,834 23	4,585 57	2,292 78	2,178 14	1,851 43	228 70
Daniels, J. V.	100 00	100 00	250 00	125 00	118 7	100 94	12 47
Donahue Bartholemew	341 7	170 75	426 87	213 43	202 76	172 35	21 29
Dee, William	241 00	120 00	300 00	150 00	142 50	121 12	14 97
Dooley, John	264 00	200 00	500 00	250 00	237 50	201 87	24 94
Dugan, Dennis	114 67	112 67	281 67	140 84	133 79	113 72	14 05
Daly, Dennis	112 00	42 00	105 00	52 50	49 87	42 40	5 23
Dolan, John	318 35	143 00	357 50	178 75	169 81	144 34	17 83
Diedrich, Paul	299 00	125 00	312 50	156 25	148 44	126 18	15 58
Dooley, Patrick	128 00	70 00	175 00	87 50	83 12	70 64	8 74

SCHEDULE "B."—Continued.

NAME OF CLAIMANT.	Amount of Claim.	Amount Allowed.	Amount of Claim and Interest.	Amount less 50 per cent.	Amount, less Excess of Appropriation, 5 per cent.	Amount less deduction for Outstanding Bonds, 15 per cent.	Second Dividend Allowed 70 per cent. Payment on Balance Due
Eaton, L. L	$ 101 64	$ 101 64	$ 254 10	$ 127 05	$ 120 70	$ 102 59	$ 12 67
Eaton, Charles	1,030 44	1,030 44	2.576 10	1,288 05	1,223 65	1,040 11	128 47
Evans, A. L.	149 91	149 91	374 77	187 38	178 01	151 30	18 69
Easton. J. H	816 77	225 00	562 50	281 25	267 19	227 11	28 05
Farrington, Nancy M.	994 05	978 93	2,447 32	1,223 66	1,162 48	988 11	122 06
Featherly. J. S	1,591 15	1,363 40	3 408 50	1,704 25	1,619 04	1,376 19	170 00
Fox & Forest	3,914 78	538 76	1,346 90	673 45	639 78	543 81	67 18
Framnes. Mathias	95 00	95 00	237 50	118 75	112 81	95 89	11 84
Floyd, Michael	44 00	22 00	55 00	27 50	26 12	22 20	2 74
Gersinger, Samuel	351 00	175 00	437 50	218 75	207 81	176 64	21 81
Goddard, E. G	4,056 92	4,056 92	10,142 30	5,071 15	4,817 59	4,094 95	505 85
Garfield, Mary E	1,113 24	1,104 49	2,761 22	1,380 61	1,311 58	1,114 84	137 72
Gaul, N. C	311 94	311 94	779 85	389 92	370 42	314 86	38 89
Heintz, C. & Bro	172 75	172 75	431 87	215 93	205 13	174 36	21 54
Hilbert, N. F	1,193 75	1,192 00	2,980 00	1.490 00	1,415 50	1,203 17	148 63
Hilbert. H. J	11,217 03	6,318 34	15,795 85	7,897 92	7,503 02	6,377 57	787 81
Hunter, Thomas	55 50	55 50	138 75	69 37	65 90	56 01	6 92
Hyslop John	122 31	122 31	305 77	152 88	145 24	123 46	15 24
Harkins, Abram	104 44	104 44	261 10	130 55	124 03	105 43	13 02
Hammond, N. N	600 00	200 00	500 00	250 00	237 50	201 87	24 94
Laird, Norton & Co	791 89	791 89	1,979 72	989 86	940 87	799 31	98 74
Lafavor, Lewis	99 75	99 75	249 37	124 68	118 45	100 67	12 45
Lamb, John	1,896 54	1,592 80	3,982 00	1,991 00	1,891 45	1,607 74	198 60
Lynch, Thomas	328 74	109 58	273 95	136 97	130 12	110 60	13 66
LaClair, Ezra	91 88	91 48	228 70	114 35	108 58	92 29	11 40
Lynch, Michael	185 00	84 00	210 00	105 00	99 75	84 78	10 48
Lawler, Patrick	65 00	32 50	81 25	40 62	38 59	32 80	4 05
Monty, Ferdinand	1,044 63	206 63	516 57	258 28	245 32	208 53	25 75
Misler & DeGraff	6,572 76	5,398 85	13,497 12	6,748 56	6,411 14	5,449 53	673 13
McGovern, John	2,358 00	318 93	797 32	398 66	378 73	321 93	39 76
McCutchen, W. G	1,184 51	1,109 51	2,773 77	1,386 88	1,317 54	1,119 92	138 33
McElligott, Maurice	100 00	93 96	234 90	117 45	111 58	94 86	11 70
McCarthy, Florence	114 50	114 50	286 25	143 12	135 97	115 59	14 27
McCarty, Thomas	261 88	250 00	625 00	312 50	296 88	252 36	31 16
Mulvihill, Rodger	43 88	43 88	109 70	54 85	52 11	44 30	5 47
Monk, John	87 80	50 00	125 00	62 60	59 38	50 49	6 22
Morse, H. D	385 00	135 00	337 50	168 75	160 32	136 28	16 83
Mulvihill, Catharine	59 42	55 42	138 55	69 27	65 81	55 94	6 91

SCHEDULE "B."—Concluded.

NAME OF CLAIMANT.	Amount of Claim.	Amount Allowed.	Amount of Claim and Interest.	Amount Less 50 per cent.	Amount Less excess of appropriation 5 per cent.	Amount Less deduction for outstanding bonds 15 per cent.	Second Dividend allowed 70 per cent. Payment on balances due.
Matteson, Milo	$ 75 00	$ 75 00	187 50	$ 93 75	$ 89 07	$ 75 72	$ 9 34
Masser, George	430 00	169 05	422 62	211 31	200 75	170 65	21 07
Mallory & Van Gorder	2,578 10	2,377 76	5,944 40	2,972 20	2,823 59	2,400 07	296 45
O'Day, Stephen	300 00	150 00	375 00	187 50	178 13	151 42	18 70
O'Larey, John	4,000 00	625 00	1,562 50	781 25	742 19	630 88	77 92
Olvaney, Patrick	76 00	38 00	95 00	47 50	45 13	38 37	4 73
Payne, Geo. W	1,517 34	1,393 77	3,484 42	1,742 21	1,655 10	1,406 84	173 78
Peterson, Andrew	60 00	30 00	75 00	37 50	35 63	30 29	3 74
Porter & Co	96 40	96 40	241 00	120 50	114 48	97 32	12 01
Putnam H. A	1,148 13	1,148 43	2,871 07	1,435 53	1,363 76	1,159 21	143 18
Robinson, Samuel	47 78	47 78	119 45	59 72	56 74	48 24	5 95
Randall, John J.	486 82	486 82	1,217 05	608 52	578 10	491 39	60 70
Richardson, Mary J	1,080 00	1,080 00	2,700 00	1,350 00	1,282 50	1,090 13	134 66
Ramer, Solomon	230 00	175 00	437 50	218 75	207 82	176 65	21 82
Raftery, Simon	408 00	164 00	410 00	205 00	194 75	165 55	20 44
Ramer, Phillip	589 53	356 43	891 07	445 53	423 26	359 78	44 44
Ramer, Phillip	1,500 00	750 00	1,875 00	937 50	890 63	757 04	93 51
Simpson, Thomas	718 02	718 02	1,795 05	897 52	852 65	724 76	89 52
Simpson, Thomas	287 38	287 38	718 45	359 22	341 26	290 08	35 83
Scherer, Conrad	353 00	200 00	500 00	250 00	237 50	201 88	24 93
Sinclair, Dudley	215 06	207 01	517 52	258 76	245 83	208 96	25 81
Simpson, V	938 03	927 12	2,317 80	1,158 90	1,100 96	935 96	115 50
Smith, Jacob	738 83	738 83	1,834 57	917 28	871 42	740 71	91 50
Smith, William	303 00	64 05	160 12	80 06	76 06	64 66	7 98
Simpson & Porter	1,619 93	1,619 93	4,049 82	2,024 91	1,923 67	1,635 13	201 98
Teaheu, Maurice	89 20	89 20	223 00	111 50	105 93	90 05	11 12
Vowles, J. D	32 00	32 00	80 00	40 00	38 00	32 30	3 99
Wirt & Whetsten	300 00	150 00	375 00	187 50	178 13	151 42	18 70
Warren, George	1,300 00	939 60	2,349 00	1,174 50	1,115 78	948 43	117 15
Whetsten, David	115 00	79 82	199 55	99 77	94 79	80 59	9 94
Wirt, C. F	21 40	21 40	53 50	26 75	25 42	21 61	2 67
Wallace, William	2,000 00	1,250 00	3,125 00	1,562 50	1,484 38	1,261 74	155 85
Wallace, James	400 00	200 00	500 00	250 00	237 50	201 62	25 12
White, S. C	239 63	239 63	599 07	299 53	284 56	241 89	29 87
Totals	$91,227 21	$61,687 41	$154,218 38	$77,109 08	$73,253 73	$62,266 12	$7,691 30

SCHEDULE "C."

CLAIMS AGAINST MINNEAPOLIS AND CEDAR VALLEY R. R. CO.

NAME OF CLAIMANT.	Amount of claim.	Amount allowed.	Amount of claim and interest.	Amount, less 50 per cent.	Amount, less excess of appropriation, 5 per cent.	Amount, less deduction for outst'ng bonds 10 per cent.	Second Dividend allowed 5 per ct. on balance due.
Abbott, John H.	$ 522 46	$ 457 46	$1,143 65	$ 571 82	$ 543 23	$ 488 91	$ 2 72
Allen, James S.	1,200 00	900 00	2,250 00	1,125 00	1,068 75	961 88	5 34
Amidon, A.	546 62	546 62	1,366 55	683 27	649 11	584 20	3 25
Archibald, E. T.	3,335 50	3,335 50	8,338 75	4,169 37	3,960 91	3,564 82	19 80
Babcock, William	179 59	179 59	448 97	224 48	213 26	191 94	1 07
Barney, Michael	30 00	30 00	75 00	37 50	35 63	32 07	18
Barron, Horace E.	368 77	277 18	692 95	346 47	329 15	296 24	1 65
Beeweere & Hale	614 95	450 00	1,125 00	562 50	534 38	480 95	2 67
Butler, Patrick	729 08	563 95	1,409 87	704 93	669 69	602 73	3 35
Boulger, James	1,030 00	565 00	1,412 50	706 25	670 94	603 85	3 35
Buckman, Israel	1,870 72	1,728 71	4,321 77	2,160 88	2,052 81	1,847 56	10 26
Bagley, David	95 00	50 00	125 00	62 50	59 38	53 45	30
Brown, Maurice	214 65	214 65	536 62	268 31	254 90	229 41	1 27
Cahill, Patrick	136 50	34 50	86 25	43 12	40 97	36 88	20
Coggswell, Mary A.	200 00	200 00	500 00	250 00	237 50	213 75	1 19
Cottrell, John C. N.	785 31	446 30	1,115 75	557 87	529 98	477 00	2 65
De Lancy, F. L.	325 00	200 00	500 00	250 00	237 50	213 75	1 19
Denison, John D.	206 80	206 80	517 00	258 50	245 58	221 03	1 22
Dike, William H.	7,590 00	30 00	75 00	37 50	35 63	32 07	18
Ennis, William	150 00	52 50	131 25	65 62	62 34	56 11	31
Fowler, Leonard E.	219 50	125 00	312 50	156 25	148 44	133 60	74
Francis, W. P.	412 03	308 78	771 95	385 97	366 68	330 02	1 83
Fredheim, Solomon	400 00	200 00	500 00	250 00	237 50	213 75	1 19
French, William	66 50	33 25	83 12	41 56	39 49	35 55	20
Fuller, Randall	82 23	82 23	205 57	102 78	97 65	87 89	49
Fowler, Elsie	580 00	200 00	500 00	250 00	237 50	213 75	1 19
Filmore, Daniel J.	298 00	150 00	375 00	187 50	178 13	160 32	89
Gillett, U. C.	97 00	72 00	180 00	90 00	85 50	76 95	43
Gaffney, John	16 00	16 00	40 00	20 00	19 00	17 10	10
Gifford, Mrs. E. D.	107 23	82 23	205 57	102 78	97 65	87 89	49
Haskins, Davis	280 68	252 74	631 85	315 92	300 13	270 12	1 50
Humber, Jacob	80 00	35 00	87 50	43 75	41 57	37 42	21
Hunnewill, E. T.	94 49	94 49	236 22	118 11	112 21	100 99	56

SCHEDULE "C."—Continued.

NAME OF CLAIMANT.	Amount of claim.	Amount allowed.	Amount of claim and interest.	Amount less 50 per cent.	Amount, less excess of appropriation 5 per cent.	Amount, less deduction for outst'ng bonds 10 per cent.	Second Dividend allowed 5 per ct. on balance due.
Hyland, Frank	$ 15 00	$ 15 00	$ 37 50	$ 18 75	$ 17 82	$ 16 04	$ 09
Henderson, W. R	330 00	210 00	525 00	262 50	219 38	234 45	1 25
Healy, Hugh	1,500 00	537 50	1,343 75	671 87	638 28	574 46	3 19
Jones, Anthony W	127 00	63 75	159 37	79 69	75 70	68 13	38
Jones, Willard M	235 00	117 50	293 75	146 87	139 53	125 58	70
Johnson, L. K.	668 00	375 00	937 50	468 75	445 32	400 79	2 22
Kellet, Rosina Inness	10,070 61	9,812 34	24,530 85	12,265 42	11,652 15	10,486 94	58 26
Leavens, E. N	2,357 42	1,991 92	4,979 80	2,489 90	2,365 41	2,128 87	11 83
Lee, Orrin	91 00	91 00	227 50	113 75	108 07	97 27	54
Lockwood & Stowell	199 00	199 00	497 50	248 75	236 32	212 69	1 18
Lot, A. S	1,010 00	550 00	1,375 00	687 50	653 13	587 82	3 27
McCarger, Ransom	268 91	268 91	672 27	336 13	319 33	287 40	1 60
McCarty, Bartholomew	690 00	167 50	418 75	209 37	198 91	179 02	99
McCarty, Edward	150 00	75 00	187 50	93 75	89 06	80 17	44
McDermott, William	105 39	105 39	263 47	131 73	125 15	112 64	63
McHale, Patrick	92 50	72 50	181 25	90 62	86 09	77 49	43
McMahon, Thomas	173 60	173 60	434 00	217 00	206 15	185 54	1 03
McSherry, John	100 00	50 00	125 00	62 50	59 38	53 45	30
Mangan, Thomas	1,224 00	612 00	1,530 00	765 00	726 75	654 08	3 63
Martin, Charles S	106 00	106 00	265 00	132 50	125 88	113 30	63
Marford, J. W	801 82	801 82	2,004 55	1,002 27	952 16	856 95	4 76
Mortenson, George	161 90	151 90	379 75	189 88	180 39	162 36	90
Mullin & Sibbison	800 00	500 00	1,250 00	625 00	593 75	534 38	2 97
Newell, George A	6,224 80	6,224 80	15,562 00	7,781 00	7,391 93	6,652 76	36 96
O'Grady, Timothy	25 50	25 50	63 75	31 87	30 28	27 26	15
Pegg, Thomas	94 00	75 00	187 50	93 75	89 12	80 31	44
Post, Abraham	3,150 00	2,446 70	6,116 75	3,058 37	2,905 46	2,614 92	14 52
Robinson, E. H	150 00	150 00	375 00	187 50	178 13	160 32	89
Ryan, Michael	268 00	134 00	335 00	167 50	159 87	143 44	80
Ryan, John	173 00	86 50	216 25	108 12	102 72	92 45	51
Sanborn, David	126 19	126 19	315 47	157 73	149 84	134 87	75
Scriver, Hiram	197 03	5,197 03	12,992 57	6,496 28	6,171 47	5,554 33	30 86
Shepherd, William A	270 00	135 00	337 50	168 75	160 32	144 29	80
Strang, Joseph	60 00	60 00	150 00	75 00	71 25	64 13	36
Sullivan, Timothy	521 50	210 00	525 00	262 50	249 38	224 45	1 25

SCHEDULE "C."—Concluded.

NAME OF CLAIMANT.	Amount of claim.	Amount allowed.	Amount of claim and interest.	Amount, less 50 per cent.	Amount, less excess of appropriation, 5 per cent.	Amount, less deduction for outst'ng bonds 10 per cent.	Second Dividend allowed 5 per ct. on balance due.
Tower, Geo. W. and Bro	$2,816 23	$2,791 23	$ 6.978 07	$3,489 03	$3,314 58	$2,983 13	$16 57
Tubbs, D. J	2.845 05	800 00	2.000 00	1.000 00	950 00	855 00	4 75
Smith, Warren	9,314 00	6,739 13	16,847 82	8,423 91	8,002 72	7,202 45	40 01
Wandall, Christian	107 50	3 00	7 50	3 75	3 57	3 22	02
Waumet, John	250 00	200 00	500 00	250 00	237 50	213 75	1 19
Way, John S	114 00	114 00	285 00	142 50	135 38	121 85	68
Wells, H. B r	500 00	250 00	625 00	312 50	296 88	267 20	1 48
Winter, Jonas H	4,974 90	4,347 43	10,868 57	5.434 28	5,162 57	4.616 32	25 81
Totals	$81,353 46	$69,283 62	$148.208 97	$74,104 34	$70,399 69	63,360 27	$351 97

SCHEDULE "D."

CLAIMS AGAINST MINNESOTA & PACIFIC R. R.

NAME OF CLAIMANT.	Amount of claim.	Amount allowed.	Amount of claim and interest.	Amount less 50 per cent.	Amount less excess of appropriation, 5 per cent.
Acker, George S	$ 602 50	$602 50	$1,506 25	$753 12	$715 46
Brown, John	52 00	11 62	29 05	14 52	13 79
Craig, Matthew G	150 00	150 00	375 00	187 50	178 12
Curtis, Frederick	1,350 00	79 40	198 50	99 25	94 29
Crooks, William	369 10	338 00	845 00	422 50	401 37
Davlin, James	143 50	1 46	3 65	1 82	1 73
Fox, Phillip	339 42	339 42	848 55	424 27	403 06
Grady, John	136 50	11 95	29 87	14 93	14 18
Hendrickson, Wm G	50 00	50 00	125 00	62 50	59 37
Hanley, Michael	209 00	7 90	19 75	9 87	9 38
Keift, Edward	162 50	11 36	28 40	14 20	13 49
Lewis, R P., 1	50 00	50 00	125 00	62 50	59 37
Lewis, R. P., 2	118 33	83 33	208 32	104 16	98 95
Lewis, R. P., 3	229 13	229 13	572 82	286 41	272 04
Lewis, R. P., 4	150 00	150 00	375 00	187 50	178 13
Madigan, Margaret	4,600 00	738 63	1,846 57	923 28	877 12
McGee, James	91 00	5 01	12 52	6 26	5 95
Malone, James	136 50	10 50	26 25	13 12	12 46
Monahan, Roger	136 50	1 84	4 60	2 30	2 18
Pick, Phillip	207 00	103 00	257 50	128 75	122 31
Rust, Geo. H	184 75	184 75	461 87	230 93	219 38
Shephard, D. C	610 97	600 57	1,501 42	750 71	713 18
Shea, Patrick	392 00	22 50	56 25	28 12	26 71
Washington, L.	333 33	333 33	833 32	416 66	395 83
Youngren, A.	245 00	180 00	450 00	225 00	213 75
Totals	$11,049 03	$4,296 20	$10,740 46	$5,370 18	$5,101 60

SCHEDULE "E."

CLAIMS AGAINST SOUTHERN MINNESOTA R. R. CO.

NAME OF CLAIMANT.	Amount of claim.	Amount allowed.	Amount of claim and interest.	Amount less 50 per cent.	Amount less excess of appropriation, 5 per cent.
Carroll, Mary	$2,142 87	$285 05	$712 62	$356 31	$338 50
Egan, Patrick	125 00	50 00	125 00	62 50	59 38
Keeler & Seaman	150 00	75 00	187 50	93 75	89 07
Seaman, Randolph	216 00	108 00	270 00	135 00	128 25
Wilder, John A.	273 00	200 00	500 00	250 00	237 50
Totals	$2,906 87	$718 05	$1,795 12	$897 56	$852 70

SCHEDULE "F."

CLAIMS DISALLOWED.—TRANSIT RAILROAD COMPANY.

NAME.	AMOUNT CLAIMED.
Burns, Timothy	$ 110 00
Carey, Michael	264 00
Cutting, Lucius S	81 00
Dee, Bridget	800 00
Evans, A. L	100 00
Farrington, O. M	1,231 88
Gorman, Charles	900 00
Graham, Joseph	81 25
Gregory, A. S	482 00
Jones, Wm. Ashley	5,150 00
Lake, Fanny E	87 88
Lawler, John J	80 00
Mahoney, Michael	160 00
Richards & Barlen	200 00
Woodford, Eva	97 50

CLAIMS DISALLOWED—MINNEAPOLIS & CEDAR VALLEY RAILROAD COMPANY.

Boulger, James	749 60
Brown, Maurice	2,000 00
Davis, A. B	552 00
Fredenberg, Aaron	28 50
Hawley, O. B	285 00
Manson, Thomas	200 00
Nask, Patrick	666 94
Quinn, Thomas	1,092 00
Quinn, Patrick H	484 00
Reardon, Patrick	287 00
Wheeler, J. B	74 00

CLAIMS DISALLOWED—MINNESOTA & PACIFIC RAILROAD COMPANY.

Froiseth, B. M. A	1,127 70
Hatch, E. A. C	250 00
Wood, E. H	156 00

CLAIMS DISALLOWED—SOUTHERN MINNESOTA RAILROAD COMPANY.

Carlin, John	76 29
Carroll, James	900 00
La Duc, A. D	17,800 00

SCHEDULE "G."

CLAIMS WITHDRAWN, OR ON WHICH NO EVIDENCE WAS OFFERED.

Thomas Allison, Levi and S. H. Brown, Isaac Dood, Carter Fuller, Thomas Garrick, Js Haney, John Henry, R. H. L. Jewett, Andrew Leddy, Michael Leonard, J. S. Lewis, John Ragan, Charles F. Shier, Louis Soward, J. H. Sullivan, Charles F. Adams, George H. Curtiss, John Crubaugh, Samuel De Good, Michael Devaney, Joseph Kaplin, William Keenan, Richard Leahey, Henry Le Roy, John McCormich, Archibald McDonald, John Mullin, William J. Sibbison, Jane Thorn, C. H. and John J. Williams, Maurice Clancy, Nora Donahue, C. J. Morris and J. C. Quimby.

STATE TAXES.

The delinquent State tax November 30, 1880, amounted to $250,867.24, and on November 30, 1882, this amount was reduced to $168,988.58, a total reduction during the two years of $81,878.66. Of the delinquent taxes $54,152.75 is charged to Ramsey county. That county did not comply with the law of 1877, providing for an adjustment of State taxes. There is an unsettled difference of $42,000 in the accounts of the State and county. A general accounting with the several counties will be had as early as possible with a view to adjusting any differences between the State and county balances of State taxes. There have been inquiries if it would be lawful for counties to adjust their differences with the State and pay any balances unaccounted for in delinquent taxes from a surplus of county revenue fund. I would recommend that authority be granted to counties to do this to a limited extent, as think it would result in securing final settlements each year with counties without levying special taxes of small amounts.

THE GENERAL TAX LAW.

The efficiency of the laws for the assessment and collection of taxes is shown by the increased amount of State taxes collected. Chapter 5 of the General Laws of 1881 displaced an important provision which should be restored and the original section added to the law as it now stands. A change in the time of publishing the delinquent tax list and entering judgment seems to be desirable. At present the law requires the delinquent list to be filed with the clerk of the court on or before June 15th of each year. I would recommend a change in the proceedings so that the lists would remain in the office of the county treasurer until December 31, and at the close of business on that day be returned to the county auditor who shall then proceed to file lists and advertise within certain times so that the sale will take place in time for the proceeds to be included in the succeeding March settlement. If this should be done the tax list should be delivered to the treasurer January 1, instead of December 1, and in addition to the settlements now required a final or annual settlement should be made December 31. By these changes the county auditors would be relieved of the work relating to delinquent taxes while the assessment and equalization was being made and the tax lists being prepared, and it would lengthen the time for preparing the tax lists, one month, and the duties pertaining to the advertisement and sale for delinquent taxes would occur when the auditor, I am assured, has less work than at any other time, while it would not materially increase the duties of the treasurer, or delay the collection of taxes beyond a reasonable limit. Another and not unimportant consideration is that the time for redemption would expire in February, and persons owning lands which may be included in tax sales would presumably be able to realize from sales of crops, so as to redeem with less hardship than now when the time for redemption expires in September.

TAXATION OF RAILROAD LANDS.

Owing to the exemption of lands, the fee of which is in certain railroad companies, there has been great difficulty in enforcing the payment of taxes on lands contracted to be sold on which a payment has been made by the purchaser, leaving the fee in the company.

The provision relating to taxation of such lands held by the Winona and St. Peter (formerly Transit) Railroad Company is as follows: " Whenever any lands granted to said railroad companies heretofore or hereafter to aid in the construction or completion of their roads, shall be contracted to be sold, conveyed or leased by said company the same shall be placed upon the tax list by the proper officers for taxation as other real estate for the year succeeding that in which such contract for a sale conveyance or lease thereof shall have been made, but in enforcing the collection of the taxes thereon the title or interests of the said company or of any trustee or mortgagee thereof shall be in no wise impaired or affected thereby, but the improvements thereon and all the interests of the purchaser or lessee therein, may and shall in case of the default of the payment of taxes upon such land be sold to satisfy the same and it shall be the duty of the proper officers to assess and collect such taxes in accordance with the general laws relating to the assessment and collection of taxes."

The other land grant roads in this State have similar provisions.

The Attorney General holds that the State can only tax that portion of real estate against which it can enforce collection, which reduces the taxable value of lands disposed of under the law quoted to the interest and improvements of the purchaser.

There is great difficulty in ascertaining the interest of the purchaser and of the railroad companies in such lands, and from the fact that the companies having these provisions are not subject to the provisions of amendments which would seem to be proper and necessary to secure the taxation of the entire value of these lands, the only remedy would seem to be in declaring the interests of the purchasers of these lands and the improvements thereon to be personal property and in enforcing payment under the provisions of the general law for the collection of personal taxes.

Under the resolution of the House of Representatives, passed March 3, 1881, suits by stipulation have been begun to test the right of exemption of lands held by the St. Paul and Chicago Railway Company and the St. Paul and Sioux City Railway Company. The lands of the Southern Minnesota Railway Company and the Stillwater and Taylor's Falls Railroad Company, referred to in the report of the committee to the House, March 3, 1881, have been ordered to be placed on the tax lists of the counties in which they are situated.

THE PERMANENT SCHOOL FUND.

This fund has become one of the largest in the States, having an aggregate accumulation of $5,372,326.23. The demand for lands belonging to this and other State grants is increasing as the government lands diminish, and the annual sales will soon make the fund the largest in the Union except, perhaps, that of Texas. The sales have aggregated 790,561 acres, at an average of $6.06 per acre. The entire grant included one-eighteenth part of the State, or about 3,000,000 acres.

The question of a reduction of the rate of interest on land contracts, held by this and other State funds, should receive consideration. The present rate of seven per cent. was fixed when the average commercial rate ruled much higher than at present, and there does not seem to be any reason to believe there will be an advance in rates. The available securities in which the trust funds can be invested bear only four and one-half per cent., or if a class of securities with a higher rate is sought, the premium is so high that the State does not realize more than the lower rate. It is desirable to keep the funds in contracts for purchase as long as possible. The security of such investment is beyond question, and the money represented remains in business channels and becomes an important factor in the development of the resources of the State. If the rate is reduced the probability of an advance in price per acre will cover a portion of the apparent loss. The average price per acre of lands sold in 1880 was $6.04, in 1881 $6.09, and in 1882 $5.93. These were years of prosperity in all classes of business. The demand for State lands in 1882 was good, especially in the southwestern part of the State, where there has been great depression in real estate, and but little demand for any class of lands. While there was considerable competition the general expression among bidders was that the rate of interest is high. While it is not desirable to urge the sale of lands beyond the legitimate demand for cultivation and improvement, it seems advisable to induce the purchasers to hold the certificate of purchase as long as possible. The annual payment of principal, besides that required at sales, on all classes of lands, in 1879 amounted to $49,713.90, in 1880 to $84,297.24, in 1881 to $154,917.81, and in 1882 to $237,278.10. The number of patents issued during these years was, in 1879, 153, in 1880, 245, in 1881, 355, and in 1882, 607; showing a growing disposition on the part of holders of certificates to make final payment and avoid the interest charge. If it is the comparatively high rate of interest that makes it desirable to make final payment, the reduction of the rate to five per cent. might result in inducing the holders to retain the certificate for a longer period.

THE PERMANENT UNIVERSITY FUND.

The accumulation of this fund is now $625,124.66. This amount is the proceeds of the sales of land and pine timber. The entire grants subject to sale for this fund amounted to 169,353 acres, with 18,000 acres yet to be approved to the State. The sales amount to 97,047 acres. When the lands are all disposed of the fund will be about $1,000,000.

INTERNAL IMPROVEMENT LAND FUND.

The accumulation of this fund is $882,452.81. There have been sold 156,883 acres, at an average price of $5.62 per acre, leaving 343,000 acres unsold. When all lands are sold this fund will be about $3,250,000. At present there is included in the account of this fund $183,841.96 of interest heretofore paid on the principal. This amount and future payments of interest will be used to pay interest on the Railroad Adjustment bonds, consequently the increase of this fund hereafter will be that of principal only.

INVESTMENT OF THE TRUST FUNDS.

The investments of these funds during the two years have been almost entirely in four and one-half per cent. bonds issued by the State in adjustment of the old credit loan of 1858. A large amount of these funds invested in government four and six per cents, and Missouri six per cents were transferred in 1881 at considerable premiums. The total transfer was $674,000 par value of bonds, which realized $803,304.10. The funds hold at present $1,596,000 Minnesota Railroad Adjustment four and one-half per cents; $868,000 Missouri sixes; $299,000 U. S. sixes; $25,000 Minnesota sevens of 1873, and $61,000 of Minnesota sixes of 1878.

The University fund holds $241,000 of the Minnesota four and one-halfs, although a large part of that fund is the accumulation of receipts from sales of Agricultural College lands, which receipts, by Sec. 56 of Title 2, of Chap. 38 of the General Statutes, are limited to investments in five per cent. bonds. I would recommend that the investment of that fund in Minnesota four and one-halfs be legalized, and that the law be amended so that future investments can be made in that class of bonds. The entire investments of the several trust funds are as follows:

PERMANENT SCHOOL FUND.

$299,000 U. S. 6 per ct. currency	$305,410 05
$25,000 Minnesota 7 per ct. currency loan of 1873	25,000 00
$61,000 Minnesota 6 per ct. currency loan of 1878	61,000 00
$1,033,000 Minnesota 4½ per ct. Railroad Adjustment	1,033,000 00
$868,000 Missouri 6 per ct. currency	875,413 92
Land contracts bearing 7 per ct	2,898,769 49
Cash	104,172 54
Unpaid drafts	69,557 23
	$5,372,326 23

PERMANENT UNIVERSITY FUND.

$241,000 Minnesota 4½ per ct. Railroad Adjustment	$241,000 00
Land contracts bearing 7 per ct	354,374 62
Unpaid drafts	3,937 83
Cash	16,003 11
Experimental Farm	8,500 00
Fruit Farm	1,309 10
	$625,124 66

INTERNAL IMPROVEMENT LAND FUND.

$322,000 Minnesota 4½ per ct. Railroad Adjustment	$322,000 00
Land contracts bearing 7 per ct	703,518 80
Unpaid drafts	19,617 66
Cash	65,910 32
	$1,111,076 78

NOTE.—In consequence of the closing of the books promptly on the 30th of November, the drafts for the fall sales of lands were not in the Treasurer's hands; hence the large amount of unpaid drafts in the foregoing statement.

THE FISCAL YEAR.

The fiscal year is fixed to close November 30. An earlier date is desirable, and if it is changed it should be fixed as near June 30 as convenient. The matters pertaining to the Treasury and this office can be arranged for closing July 31 without any change in settlements with counties and other sources of State revenue, and all collections could be made and the books closed at that date with less interference with the established dates and methods of accounting with counties and corporations than any other. Unless other institutions are greatly inconvenienced I would suggest that the fiscal year be fixed as closing July 31.

It is proper to state that heretofore appropriations have been considered as being made for the calendar year. I would recommend that all appropriations be made for the fiscal year, as it may be determined. Authority should be given the Auditor to determine at some definite date when an appropriation, or any balance not needed for the purpose for which it was made, and to cancel the same, and when so cancelled there should be no authority to revive it.

SYSTEM OF ACCOUNTS.

The system of accounts between this office and the State Treasury has not been satisfactory as to detail, although its general results have been correct. The payments out of the treasury are entirely within the control of this office. The receipts of the treasury are not in all instances required to be reported to this office, either in detail or in gross amounts. There should be some general provision of law that the Treasurer should not receive money without a draft from this office, or, that a receipt given in that office should be countersigned by the Auditor. The law should require daily balances of the Treasurer's cash to be made in this office, and receipts and vouchers to be returned daily. The law should require all matter by which the State has a certain or-contingent claim for money, to be reported and filed in this office by consecutive number and date, and to be registered the day such claim is received, and all subsequent doings in regard to the claim should be required to be noted on the register, and the claim respectively, including the date of payment and journal page whereon the same is charged to the Treasurer. The law should also require the Auditor to include all claims in detail which remain unadjusted, and for which drafts have not been made at the close of the year in his report. It should also require the Treasurer to include in his report all unpaid drafts, giving reasons, if any, for such non-payment, and a statement of all drafts turned over to the Attorney General for collection upon which payment has not been secured. This change of manner and detail of accounts will require additional force in this office, and probably in the Treasurer's office. The change from monthly to daily accounts has been arranged for in this office, and will be put into effect at the earliest practicable day.

In order to properly and promptly transact and record the financial operations of the State, as shown in this office and the Treasury, there should be provision made for a bookkeeper, which has not heretofore been considered necessary. Also, in order to keep up the somewhat elaborate detail of land sales and payments, there should be authority to appoint an assistant land clerk, as at present the land clerk has his time fully employed in issuing patents and attending to the correspondence relating to lands, both of which items show a large annual increase.

REPORT

OF

LAND DEPARTMENT.

SALE OF SCHOOL LANDS IN 1881.

COUNTIES.	Number of Acres sold.	Amount of Sale.	Amount of Principal Paid.	Amount of Principal Unpaid.	Amount of Interest Paid.
Anoka	1,538.85	$ 10,451 55	$ 6,304 55	$ 4,147 00	$ 171 00
Becker	1,620.10	8,980 50	3,158 38	5,822 12	239 48
Benton	339.03	1,395 15	256 15	1,439 00	59 26
Big Stone	1,133 96	11,809 45	1,782 45	10,027 00	668 64
Blue Earth	105.00	775 20	164 52	610 68	24 94
Brown	80 00	400 00	60 00	340 00	14 02
Carlton	640.00	3,200 00	1,600 00	1,600 00	65 35
Cass	321.86	1.609 30	243 30	1,366 00	56 31
Chippewa	994.48	6,321 38	1,522 38	4,799 00	197 86
Chisago	680.68	3,413 40	515 40	2,898 00	119 50
Clay	2,076.90	11,389 60	1,717 52	9,672 08	678 15
Crow Wing	569.18	3,365 90	506 90	2,859 00	117 82
Dakota	203.35	1,016 75	152 51	864 24	35 65
Douglas	3,082.98	18,007 23	3,377 23	14,630 00	642 64
Faribault	680.00	4,430 00	665 00	3,765 00	155 25
Fillmore	20.00	120 00	60 00	60 00	2 11
Freeborn	211.75	1,257 50	288 50	969 00	39 96
Goodhue	150.00	780 00	118 00	662 00	27 31
Grant	2,199.18	11,802 24	1,950 24	9,852 00	413 79
Hennepin	520.00	4,440 00	1,010 00	3,430 00	141 35
Houston	40.00	200 00	30 00	170 00	7 01
Isanti	400.00	2,140 00	322 00	1,818 00	74 97
Jackson	40.00	240 00	36 00	204 00	14 01
Kandiyohi	1,160.00	7,360 00	1,104 00	6,256 00	266 48
Kittson	1,674.70	10,922 90	8,440 90	2,482 00	172 75
Lake	640.00	3,200 00	3,200 00	…………	…………
Le Sueur	760.60	3,840 00	580 00	3,260 00	118 54
McLeod	224.45	1,398 15	288 90	1,109 25	45 83
Marshall	2.760.00	19,880 00	3,062 00	16 818 00	722 78
Martin	75.56	563 36	84 36	479 00	33 57
Meeker	436 07	2,240 35	364 35	1,876 00	77 35
Morrison	1,243.45	6,647 25	1,469 57	5,177 68	226 62
Nicollet	40 00	200 00	30 00	170 00	7 01
Otter Tail	5,383 10	29,824 80	6,924 80	22,900 00	1,258 28
Pine	680.00	4,300 00	2.150 00	2,150 00	88 65
Polk	10,799.34	64,888 39	12,497 11	52,391 28	2,837 62
Pope	2,341.34	14,959 55	2,957 71	12,001 84	524 20
Redwood	120.00	620 00	93 00	527 00	37 41
Scott	130 00	700 00	165 00	535 00	22 06
Sherburne	797.36	5,032 84	938 84	4,094 00	168 81
Sibley	1,268 75	6,825 63	1,024 63	5,801 00	238 99
Stearns	3,173 73	22,086 10	3,547 10	18,539 00	764 41
Stevens	576.50	3,645 75	547 75	3,098 00	219 07
Steele	40 00	200 00	30 00	170 00	7 01
Todd	3,184.98	17,858 23	2,849 77	15,008 46	618 83
Wadena	720.00	4,080 00	655 00	3,425 00	140 57
Waseca	80.00	440 00	66 00	374 00	15 42
Washington	807.15	4,144 12	878 17	3,265 95	134 67
Watonwan	80.00	780 00	118 00	662 00	27 30
Wilkin	4,246.31	28,957 01	4,349 92	24,607 09	1,050 00
Winona	478.20	2,099 53	654 93	1,444 60	59 32
Wright	806.61	4,866 71	[illegible] 1	3,450 00	142 25
Totals	62,374.40	$380,405 82	$86,329 55	$294,076 27	$13,992 18

SALE OF SCHOOL LANDS IN 1882.

COUNTIES.	Number of Acres Sold.	Amount of Sale.	Amount of Principal Paid.	Amount of Principal Unpaid.	Amount of Interest Paid.
Anoka................	546.40	$ 2,772 00	$ 859 80	$ 1,912 20	$ 78 74
Big Stone.............	116.44	1,005 40	148 40	857 00	59 99
Brown...............	200.00	1,000 00	150 00	850 00	35 00
Carver................	80.00	400 00	60 00	340 00	14 00
Chippewa.......... ...	1,070 00	5,640 00	1,136 00	4,504 00	185 50
Chisago.............	719.51	3,787 55	591 55	3,196 00	131 64
Clay..................	7,582.63	53,906 94	7,834 28	46,072 66	2,775 98
Dakota..............	147.03	798 02	124 20	673 82	28 96
Douglas..............	2,711.24	14,810 60	2,862 60	11,948 00	686 15
Faribault............	249.74	1,368 70	205 70	1,163 00	48 03
Fillmore............	80.00	400 00	60 00	340 00	14 00
Freeborn	160.42	802 10	122 00	680 10	28 05
Goodhue............	30.00	150 00	22 50	127 50	5 25
Grant...............	3,077.27	17,147 47	2,583 47	14,564 00	626 63
Hennepin...........	358.38	3,383 80	507 57	2,876 23	118 38
Jackson.............	1,805.00	10,660 00	1,855 00	8,805 00	617 61
Kandiyohi...........	1,247.92	6,909 60	1,267 60	5,642 00	245 57
Kittson.............	5,439.86	29,940 00	10,378 00	19,562 00	1,456 44
Le Sueur............	80 00	400 00	60 00	340 00	14 00
McLeod.............	168.50	932 50	140 50	792 00	32 63
Marshall.............	3,360.00	20,938 00	3,359 00	17,579 00	1,292 01
Martin.......... ..	340 08	2,260 56	339 56	1,921 00	136 42
Meeker	653.75	3,508 75	526 75	2,982 00	122 81
Morrison............	668 36	3,341 90	661 90	2,680 00	112 09
Murray.............	4,103.50	24,559 02	5,450 05	19,108 97	788 80
Nicollet..	141.28	706 40	106 40	600 00	24 71
Nobles....	80.00	400 00	60 00	340 00	14 00
Norman...........	1,840.00	10,340 00	1,557 00	8,783 00	650 13
Otter Tail............	7,944.66	43,350 51	8,929 39	34,421 12	1,814 99
Polk	6,831.25	37,850 00	5,682 00	32,168 00	1,945 03
Pope................	948.58	4,844 15	829 15	4,005 00	280 35
Redwood....	120.00	720 00	108 00	612 00	27 12
Renville............	1,320 00	7,270 00	1,092 00	6,178 00	272 55
Rice	72.87	364 36	56 06	308 30	12 70
Rock................	4,585.92	25,209 60	3,784 60	21,425 00	882 61
Scott...........	322.90	1,664 50	271 58	1,392 92	57 38
Sibley........... ...	1,627.40	8,987 00	1,376 00	7,611 00	312 09
Sherburne..........	1,399.90	8,940 00	1,347 00	7,593 00	312 28
Steele...............	40.00	200 00	30 00	170 00	7 00
Stearns.............	2,488.27	21,748 45	3,940 45	17,808 00	747 95
Stevens.............	310 00	2,640 00	396 00	2,244 00	157 08
Swift................	440 00	2,210 00	340 00	1,870 00	82 82
Todd...............	3,515 61	19,204 19	9,732 19	9,472 00	395 35
Wabasha...........	80.00	400 00	60 00	340 00	14 00
Waseca........... .	40.00	200 00	30 00	170 00	7 00
Washington.........	539.40	3,044 00	1,031 80	2,012 20	82 92
Wilkin..............	2,278.85	16,043 10	2,418 10	13,625 00	584 74
Winona..............	40 00	200 00	50 00	150 00	6 18
Wright..............	1,076.08	6,262 26	1,449 26	4,813 00	198 26
Total............	73,059.00	$433,621 43	$ 85,993 41	$ 347,628 02	$18,543 92

STATEMENT OF THE APPRAISAL AND SALE OF SCHOOL LANDS.

COUNTIES.	Acres appraised and sold.	Acres appraised and unsold.	Total value of lands appraised and unsold.	Average value per acre	Number of acres unappraised.	Number of acres school land in place.	Number of acres of indemnity school land.	Total number of acres school land in county.
Aitkin					65,810.30	65,810.30		65,810.30
Anoka	7,193.43	8,059.47	$40,617 35	$5 30	512.80	15,765.70		15,765.70
Becker	4,552.95	10,868.46	59,954 97	5 60	17,477 85	32,899.26		32,899.26
Beltrami								Indefinite.
Benton	1,834 36	1,800.00	9,004 35	5 00	10,908.13	14,542.49		14,542 49
Big Stone	1,250.40	15,268.63	84,990 92	5 56		16,517.03		16,517.03
Blue Earth	16,509.67	1,048 00	6,670 40	6 36		17,557.67		16,567.67
Brown	10,542.56	7,001.30	39,966 50	5 70		15,863.86	1,680.00	17,543.86
Carlton	640.00				29,790.51	30,430.41		30,430 51
Carver	11,750.51					11,750.51		11,750.51
Cass	481.86	750.00	3,750 00	5 00	Indefinite.	Indefinite.		Indefinite.
Chippewa	5,536.46	20,528.19	112,638 54	5 48		20,471.22	5,593.43	26,064.65
Chisago	9,488.47	4,853 36	24,350 36	5 00		14,341.83		14,341.83
Clay	19,363.07	18,496.48	121,854 20	6 58		37,859 55		37,859.55
Cook	334.60	564.99	2,824 95	5 00	Indefinite.	Indefinite.		Indefinite.
Cottonwood	4,869.92	18,467.18	121,893 83	6 60	120.00	22,933.53	523.57	23,457.10
Crow Wing	888.88	2,240.00	11,200 00	5 00	19,485.26	21,111.75	1.502.39	22,614.14
Dakota	19,829.35	1,329.68	6,684 35	5 00		21,159 03		21,159 03
Dodge	14,440.00					14,440.00		14,440.00
Douglas	17,036 97	5,131.89	32,887 47	6 48	120 00	22,288.86	2,033.54	24,322.40
Faribault	21,888.99	4.262.62	23,425 40	5 49		25 194.07	957 54	26,151.61
Fillmore	29,700.00	540.00	3,310 00	6 12		30,240.00		30,240.00
Freeborn	24,170 88	1,763.47	8,958 50	5 08		25,158.71	775.64	25,934.35
Goodhue	21,072.90	80.00	440 00	5 50	120.00	21,272.90		21,272.90
Grant	7,510.44	12,524.10	65,542 92	5 23	601.30	20,635.84		20,635 84
Hennepin	14,388.65	80.00	560 00	7 00		14,468.65		14,468.65
Houston	15,892.03	2,879.14	14,628 20	5 08		18,771.17		18,771.17
Isanti	1,964.13	8,152.50	44,442 53	5 45	5,770 01	15,886.64		15,886.64
Itasca								Indefinite.
Jackson	6,749 93	18,783.16	112,730 71	6 00		25,316.79	216.30	25,583.09
Kanabec					19,089.36	19,089.36		19,089.36
Kandiyohi	15,541.92	14,727.96	78,781 45	5 34		28,153.84	2,116.04	30,269.88
Kittson	7,114.56	13,160 00	66,040 00	5 01	30,109.55	50,384.11		50,384.11
Lac qui Parle					15,582.85	15,582.85		15,582.85
Lake	1,280.00				Indefinite.	Indefinite.		Indefinite.
Le Sueur	15,971.06	135.10	675 50	5 00		16,106.16		16,106.16
Lincoln					19,331.64	19,331.64		19,331.64
Lyon	6,929.50	25,020.53	126,642 65	5 06		24,977.53	6,972.50	31,950 03

STATEMENT OF THE APPRAISAL AND SALE OF SCHOOL LANDS.—Continued.

COUNTIES.	Acres appraised and sold.	Acres appraised and unsold.	Total value of lands appraised and unsold.	Average value per acre	Number of acres unappraised.	Number of acres school land in place.	Number of acres of indemnity school land.	Total number of acres school land in county.
McLeod	19,442.75	235.22	$ 1,221 80	$5 19	....	17,651.25	2,026.72	19,677.97
Marshall	8,015.35	16,440.00	89,640 00	5 45	4,425.75	Indefinite.	....	Indefinite.
Martin	5,841.13	19.575.28	116,938 95	5 46	71.85	24,510.87	977.39	25,488 26
Meeker	17,563.68	5,314.66	26,651 61	5 01	....	20,343.77	2,534.57	22,878.34
Mille Lacs	....	1,280.00	7,040 00	5 50	19,161.92	20,441.92	....	20,441.92
Morrison	5,917.82	7,344.44	41,019 05	5 58	27,755.84	38,981.14	2,036.96	41,018.10
Mower	25,600 00	....	....	....	....	25,600.00	....	25,600.00
Murray	4,103.50	9,114.36	52,699 18	5 78	32,221.91	24,115.74	21,324.03	45,439.77
Nicollet	12,676.48	1,496.74	7,622 50	5 08	....	14,053.22	120.00	14,173.22
Nobles	5,219.78	20,034.35	122,164 30	6 01	....	25,254.13	....	25,254.13
Norman	9,793.94	22,160.14	111,480 95	5 03	20,217.16	52,171.24	....	52,171.24
Otter Tail	28,384.25	20,204.21	105,550 09	5 22	22,662.56	68,642.73	2,608.29	71,251.02
Olmsted	23,010.00	30.00	150 00	5 00	....	23,040.00	....	23,040.00
Pine	1,440.00	1,120.00	7,140 00	6 37	45,715.36	48,275.36	....	48,275.36
Pipestone	....	....	....	....	23,716 57	17,920 00	5,796.57	23,716.57
Polk	27,044.70	26,830.77	147,386 97	5 49	Indefinite.	Indefinite.	....	Indefinite.
Pope	9,386 99	15,101.71	76,441 86	5 06	2,347.53	24,441.20	2,395.03	26,836.23
Ramsey	4,553.11	....	....	....	....	4,553.11	....	4,553 11
Redwood	7,958.12	19,577.29	111,598 55	5 70	....	23,010.86	4,524.55	27,535 41
Renville	18,554.92	24,875.15	135,231 61	5 43	....	33,900.52	9,529.55	43,430.07
Rice	17,997.81	32.54	162 70	5 00	80 00	18,030.35	80.00	18,110.35
Rock	13,880.00	2,880.00	14,486 00	5 00	....	16,760.00	....	16,760.00
St. Louis	1,760.00	....	....	....	Indefinite.	Indefinite.	....	Indefinite.
Scott	11,770.03	290.33	1,451 65	5 00	....	12,060.36	....	12,060.36
Sherburne	5,665.39	9,589.64	48,128 96	5 01	....	15,220.93	34 10	15,255.03
Sibley	18,495 62	3,000.00	15,229 99	5 07	....	19,575.62	1,920.00	21,495.62
Stearns	23,803.03	22,719 14	139,530 31	6 14	40.00	45,628.95	933 22	46,562.17
Steele	14,714.20	320.00	1,600 00	5 00	....	14,954.20	80.00	15,034.20
Stevens	5,714.80	14,618.40	78,991 20	5 40	80.00	20,285.40	127.80	20,413.20
Swift	8,624 72	25,778.71	134,803 42	5 23	....	26,352.02	8,051.41	34,403.43
Todd	8 932.89	29,936.36	154,262 58	5 23	....	32,607.11	6,262.14	38,869.25
Traverse	....	....	....	....	20,582.70	20,582.70	....	20,582.70
Wabasha	6,934.46	402.40	2,012 00	5 00	....	7,336.86	....	7,336.86
Wadena	2,705.65	3,680.00	22,410 00	6 08	12,795.40	18,853 30	327.75	19,181.05
Waseca	11,583.32	480.00	2,760 00	5 72	....	11,743.82	820.00	12,063.32
Washington	12,959.99	690.00	3,460 00	5 01	....	13,093.29	556.70	13,649.99

STATEMENT OF THE APPRAISAL AND SALE OF SCHOOL LANDS.—Concluded.

COUNTIES.	Acres appraised and sold.	Acres appraised and unsold.	Total value of lands appraised and unsold.	Average value per acre	Number of acres unappraised.	Number of acres school land in place.	Number of acres of indemnity school land.	Total number of acres school land in county.
Watonwan	5,909.62	11.009.73	$59,988 55	5 45	....	15,330.53	1,588.82	16,919.35
Wilkin	10,003 55	18,365.21	91,863 36	5 00	....	27,848.54	520.22	28,368.76
Winona	20,652.41	1,573.57	8,359 32	5 31	....	22,225.98	....	22,225.98
Wright	17,468.77	4,537.90	25,746 23	5 67	1,126.86	22,007.03	1,126.50	23,133.53
Yellow Medicine	....	22,486.01	125,330 76	5 57	7,680.00	19,970.44	10,195.57	30,166.01
Total	790,801.23	601,638.47	$3,316,020 50	....	475,510 97	1,673,687.25	108,368.84	1,781,956.19

STATEMENT OF THE SALES OF SCHOOL LANDS EACH YEAR.

YEAR SOLD.	Number of Acres Sold.	Purchase Money.	Average Price per Acr
1862	38,247.41	$242,876 10	$6 35
1863	58,220.38	309,740 06	5 82
1864	41,483 58	287,269 27	6 02
1865	24,241 93	144,930 05	5 97
1866	54,495 25	339,761 93	6 23
1867	34,620 62	209,288 28	6 04
1868	76,910.13	464,840 61	6 04
1869	39,877 23	238,204 45	5 97
1870	14,802.56	89,696 41	6 06
1871	7,495.20	49,085 00	6 54
1872	27,606 73	166,081 07	6 01
1873	22,164 12	135,437 66	6 11
1874	20,041.74	116,489 32	5 81
1875	26,362 75	148,963 70	5 65
1876	12,989 26	74 186 27	5 71
1877	19,296 65	111,977 85	5 81
1878	70,853 68	447,487 88	6 31
1879.	32,884.71	200,380 25	6 09
1880	64,277.01	388,686 35	6 04
1881.	62,374.40	380,405 82	6 09
1882	73,059.00	433,621 43	5 93
Total	817.304.34	$4,979,409 76	
Deduet forfeited land re-sold	26,743 17	182,205 18	
Total Sales of land	790,561.17	$4,797,204 58	6 06
Amount paid on forfeitures, right of way, &c		8,072 06	
Sales of pine timber		452,264 98	
Profits on sales of bonds		91,561 01	
Total		$5,349.102 63	

SALE OF AGRICULTURAL COLLEGE LANDS IN 1881.

COUNTIES.	Number of Acres Sold.	Amount of Sale.	Amount of Principal Paid	Amount of Principal Unpaid.	Amount of Interest Paid.
Brown	40.00	$ 200 00	$ 30 00	$ 170 00	$ 7 01
Faribault	124.13	620 65	93 65	527 00	21 72
Freeborn	320.00	1,600 00	240 00	1,360 00	56 08
McLeod	438 77	2,283 85	354 85	1,929 00	79 54
Meeker	45 74	228 70	34 70	194 00	8 00
Nicollet	160.00	800 00	120 00	680 00	28 04
Pope	200.00	1,000 00	150 00	850 00	37 00
Sibley	1,557 56	7,917 80	1,189 80	6,728 00	277 33
Stearns	320.00	2,040 00	552 00	1,488 00	61 51
Wright	910.55	6,032 75	1,787 75	4,245 00	174 99
Total	4,116.75	$22.723 75	$4,552 75	$18,171 00	$751 22

Average price per acre, $5.51.

SALES OF AGRICULTURAL COLLEGE LANDS IN 1882.

COUNTIES.	Number of Acres Sold.	Amount of Sale.	Amount of Principal Paid.	Amount of Principal Unpaid.	Amount of Interest Paid.
Brown	520.00	$2,640 00	$396 00	$2,244 00	$92 41
Faribault	240.00	1,200 00	180 00	1,020 00	42 00
Freeborn	160.42	802 10	122 00	680 10	28 05
McLeod	81 23	406 15	86 15	320 00	13 18
Sibley	1,000 00	5,080 00	732 00	4,318 00	177 82
Stearns	280.00	1,720 00	734 00	986 00	41 42
Waseca	40.00	280 00	42 00	238 00	9 81
Wright	335.10	2,225 70	553 70	1,672 00	69 23
Totals	2,656 75	$14,353 95	$2,875 85	$11,478 10	$473 92

Average price per acre, $5.42.

STATEMENT OF THE APPRAISAL AND SALE OF AGRICULTURAL COLLEGE LANDS.

COUNTIES.	Number of Acres Appraised and Sold.	Number of Acres Appraised and Unsold.	Value of Lands Appraised and Unsold.	Average Value per Acre.	Number of Acres Unappraised.	Total Number of Acres in the County.
Blue Earth	2,637.63	240.00	$1,200 00	$5 00	....	2,877.63
Brown	1,155.23	914.81	4,881 65	5 34	....	2,070.04
Dodge	597.34	679.26	3,817 44	5 62	....	1,276.60
Faribault	6,196.89	1,491.75	7,458 75	5 00	....	7,688.64
Freeborn	11,685.62	1,980.99	9,904 95	5 00	....	13,666.61
Lac qui Parle	....	....	....	....	320 00	320.00
McLeod	13,435.33	440.04	2,380 24	5 41	....	13,875.37
Meeker	4,829.42	1,200.49	6,002 45	5 00	....	6,029 91
Mower	1,759.52	....	....	....	....	1,759.52
Nicollet	3,120.00	1,040.00	5,200 00	5 00	....	4,160.00
Pope	480.00	1,120.00	5,600 00	5 00	....	1,600.00
Renville	1,601.39	320 00	1,635 20	5 11	....	1,921.39
Sibley	7,821.04	2,556.00	12,979 08	5 08	....	10,377.04
Stearns	2,196.80	7,047.47	45,566 18	6 46	....	9,224.27
Steele	3,402.71	120.00	600 00	5 00	....	3,522.71
Waseca	2,354.56	360.00	2,220 00	6 16	....	2,714.56
Watonwan	3,196 68	1,440.00	7,200 00	5 00	....	4,636.68
Wright	5,096.93	1,601.38	10,006 99	6 36	....	6,698.31
Totals	71,567.09	22,552.19	$126,652 93	....	320.00	94,439.28

SALES OF UNIVERSITY LANDS IN 1881.

COUNTIES.	Number of Acres Sold.	Amount of Sale.	Amount of Principal Paid.	Amount of Principal Unpaid.	Amount of Interest Paid.
Clay	320.00	$1,680 00	$ 252 00	$1,428 00	$100 24
Polk	1,275.81	8,134 86	1,228 00	6,906 86	334 66
Sherburne	40.00	240 00	36 00	204 00	6 41
Wilkin	70.78	389 28	49 28	340 00	14 54
Totals	1,706.59	$10,444 14	$1,565 28	$8,878 86	$457 83

SALES OF UNIVERSITY LANDS IN 1882.

COUNTIES.	Number of Acres Sold.	Amount of Sale.	Amount of Principal Paid.	Amount of Principal Unpaid.	Amount of Interest Paid.
Clay	320.00	$1.600 00	$ 240 00	$1,360 00	$ 98 64
Murray	80.00	480 00	72 00	408 00	16 72
Norman	400.00	2,240 00	336 00	1,904 00	141 44
Sherburne	440.00	3,090 00	517 00	2,573 00	106 02
Wilkin	464.97	2,397 33	361 33	2,036 00	87 40
Totals	1,704.97	$9,807 33	$1,526 33	$8,281 00	$450 22

Average price per acre—$5 75.

STATEMENT OF THE APPRAISAL AND SALE OF THE FIRST GRANT OF UNIVERSITY LAND.

ACT OF CONGRESS APPROVED FEBRUARY 19, 1851.

COUNTIES.	Number of acres sold by Regents.	Number of acres sold by Land Com'sion'rs.	Number of acres appraised and unsold.	Value of Lands appraised and unsold.	Average value per acre.	Number of acres unappraised.	Total acres in the County.
Dakota	1,896.99						1,896.99
Kanabec						9,753.47	9,753.47
Kandiyohi			4,640.32	$27,841 92	$6.00		4,640.32
Meeker	840.00	1,406.36	1,906 40	8,722.64	5.10		4,152.76
Mille Lacs						9,843.73	9,843.73
Pine						1,920.00	1,920.00
Renville	353.26	578.26	40.00	240.00	6.00		971.52
Rice	11,445 05						11,445.05
Sherburne	239 46	480.00	1,104.09	6,198.99	5.61		1,823.55
Total	14,774.76	2,464.62	7,690 81	$43,003.55		21,517.20	46,447.39

STATEMENT OF THE APPRAISAL AND SALE OF THE SECOND GRANT OF UNIVERSITY LAND.

ACT OF CONGRESS APPROVED JULY 8, 1870.

COUNTIES.	Number of acres appraised and sold.	Number of acres appraised and unsold.	Value of Lands appraised and unsold.	Average value per acre.	Number of acres unappraised.	Total acres in the County.
Cass					3,816.94	3,816.94
Clay	3,994.96					3,994.96
Itasca					3,621.58	3,621.58
Lyon	480 00	2,360.00	$11,800.00	$5.00		2,840.00
Murray	80 00	2,719.43	13,637.15	5 01	1,440.28	4,239.71
Norman	3,110 14	1,675.91	8,497.51	5 07		4,786 05
Redwood		240.00	1,200.00	5.00		240.00
Wilkin	535.75	4,391.66	22,244 63	5.06		4,927.41
Total	8,200 85	$11,387.00	$57,379.29		8,878.80	28,466.65

STATEMENT OF THE SALES OF AGRICULTURAL COLLEGE AND UNIVERSITY LANDS EACH YEAR.

Year sold.	No. of acres sold	Purchase money	Aver'ge price per acre
1867	1,120.00	$ 5,600	$5 00
1868	7,157.15	44,862 38	6 26
1869	9,995.55	56,529 01	5 65
1870	3,481.27	17,866 35	5 10
1871	640.00	3,408 00	5 32
1872	4,916.48	26,156 01	5 32
1873	2,640.00	14,260 00	5 40
1874	4,682.22	26,698 77	5 70
1875	4,953.89	27,149 58	5 49
1876	3,707.14	20,163 59	5 44
1877	7,551.26	44,205 99	5 85
1878	7,574.72	42,124 13	5 56
1879	5,849 50	34,664 36	5 96
1880	4,844.39	26,464 73	5 73
1881	4,116 75	22,723 75	5 51
1882	2,656 75	14,353 95	5 42
	75,887.07	$427,230 60	
Deduct forfeited lands resold	4,279.98	25,600 00	
Total sales of land	71,607 09	$401,630 60	
Amount paid on forfeiture		3,971 00	
Right of way		741 58	
Total		$406,343 18	

UNIVERSITY LANDS.

FIRST GRANT.

Years sold.	No. of acres sold	Purchase money	Aver'ge price per acre
1875	80.00	$ 400 00	$5 00
1878	1,224.62	6,768 74	5 52
1879	400.00	2,040 00	5 10
1880	280.00	1,480 00	5 28
1881	40.00	240 00	6 00
1882	440.00	3,090 00	7 01
Total sales of land	2,464.62	$ 14,018 74	
Sales of Pine timber		134,095 78	
Transfer from State Institutions Fund		7,292 73	
Transfer from Int. Imp. Land Fund		150 00	
		$155,557 25	

SECOND GRANT.

Year sold.	No. of acres sold	Purchase money	Aver'ge price per acre
1878	1,760 00	$ 9,000 00	$5 11
1879	160 00	800 00	5 00
1880	3,551 06	20,612 29	6 15
1881	1,666.59	10,204 14	6 01
1882	1,264.97	6,717 33	5 31
Total	8,202 62	$47,333 76	

SALES OF INTERNAL IMPROVEMENT LANDS IN 1881.

COUNTIES.	Number of Acres Sold.	Amount of Sale.	Amount of Principal Paid.	Amount of Principal Unpaid.	Amount of Interest Paid.
Chippewa	160 00	$ 960 00	$ 144 00	$ 816 00	$ 33 64
Clay	4,960.00	26,640 00	4,012 00	22,628 00	1,588 33
Douglas	2,684 40	14,582 00	2,533 00	12,049 00	529 39
Grant	1,227.11	6,445 55	969 55	5.476 00	230 00
Jackson	240.00	1,280 00	192 00	1,088 00	74 68
McLeod	80.00	450 00	68 00	382 00	15 75
Martin	340.48	1,822 88	273 88	1,549 00	106 61
Morrison	320.00	1,600 00	240 00	1,360 00	60 00
Otter Tail	3,754.45	19,642 25	3,064 40	16,577 85	856 84
Polk	2,000.00	11,460 00	1,721 00	9,739 00	515 22
Pope	2,955.54	16,037 70	2,407 30	13,630 40	593 19
Redwood	120 00	700 00	105 00	595 00	42 21
Sibley	1,360.55	6,802 75	1,020 75	5,782 00	238 15
Stearns	160.00	880 00	136 00	744 00	30 68
Stevens	120.00	720 00	108 00	612 00	43 07
Todd	2,120.00	10,760 00	1,614 00	9,146 00	377 13
Wilkin	2,698.66	14,468 12	2,186 12	12,282 00	525 08
Yellow Medicine	40.00	270 00	41 00	229 00	16 21
Totals	25,311 19	$135,521 25	$20,836 00	$114,685 25	$5,876 18

Average value per acre—$5 34.

SALES OF INTERNAL IMPROVEMENT LANDS IN 1882.

COUNTIES.	Number of Acres Sold.	Amount of Sale.	Amount of Principal Paid.	Amount of Principal Unpaid.	Amount of Interest Paid.
Chippewa	80.00	$ 480 00	$ 72 00	$ 408 00	$ 16 82
Clay	3,800 00	24,248 00	3,548 00	20.700 00	1,345 91
Douglas	1,759.40	9,287 00	1,410 00	7,877 00	468 62
Grant	1,401.74	7,180 00	1,079 00	6,101 00	263 08
Jackson	2,925.99	16,755 94	2.523 94	14,232 00	998 46
McLeod	120.00	680 00	102 00	578 00	23 81
Martin	80.00	520 00	78 00	442 00	31 42
Morrison	80 00	400 00	60 00	340 00	14 22
Norman	795.22	4,236 10	729 00	3,507 10	261 54
Otter Tail	7,478.20	42,060 30	6,409 85	35,650 45	1,819 91
Pope	2,120.00	11,760 00	1,824 00	9,936 00	695 52
Redwood	40.00	220 00	33 00	187 00	8 28
Renville	1,200.00	6,620 00	1,271 00	5,349 00	234 97
Sibley	880.00	4,400 00	830 00	3,570 00	147 00
Stearns	439.04	3,034 72	659 72	2,375 00	99 78
Stevens	480.00	2,780 00	418 00	2,362 00	165 28
Todd	400.00	2,000 00	310 00	1,690 00	70 29
Wilkin	4,360.00	24,170 00	4,322 00	19,848 00	852 06
Totals	28,439.59	$160,832 06	$25,679 51	$135,152 55	$7,516 97

Average value per acre—$5 65.

STATEMENT OF THE APPRAISAL AND SALE OF INTERNAL IMPROVEMENT LANDS.

COUNTIES.	Number of Acres Appraised and Sold.	Number of Acres Appraised and Unsold.	Value of Lands Appraised and Unsold.	Average Value per Acre.	Number of Acres Unappraised.	Total No. of Acres in County.
Cass	....	....	....	......	13,311.82	13,311.82
Chippewa	520.00	9,400.00	$ 47,916.80	$ 5 10	....	9,920.00
Clay	21,760.00	640.00	3,200 00	5 00	....	22,400.00
Douglas	12,682.36	4,268.06	20,560 20	5 00	....	16,950.42
Faribault	....	646.68	3,233 40	5 00	....	646.68
Grant	4,508.85	9,555.66	48.515 45	5 07	....	14,064.51
Itasca	....	....	....	......	333.01	333.01
Jackson	7,672.90	51,634.49	270,262 02	5 23	....	59,307.39
Kandiyohi	....	8,000 00	40,880 00	5 11	....	8,000.00
Lac qui Parle	....	....	....	......	4,799.90	4,799.90
Martin	3,650.51	42,051.68	219,786 51	5 22	320.00	46,022.19
McLeod	1,640 00	600.00	3,394 00	5 65	....	2,240.00
Morrison	2,680.00	3,080.00	15,400 00	5 00	7,999.41	13,759.41
Norman	5,155.22	7,232.21	40.014 52	5 53	2,567.13	14,954.56
Otter Tail	25,763.42	13,868 13	74,347 71	5 36	1,680.00	41,311.55
Pope	8,875.94	14,802.07	74,450 35	5 02	320.00	23,998.01
Redwood	10,535.90	42,994.59	225,210 05	5 23	....	53,530.49
Renville	30,756.80	38,566.22	204,538 62	5 30	....	69,323 02
Sibley	6,840.23	4,680.03	23.400 15	5 00	....	11,520.26
Stearns	639.04	10,212.66	69,280 48	6 78	....	10,851.70
Stevens	2,280.00	2,840.00	15,144 80	5 33	....	5,120.00
Todd	2,800 00	7,123.81	45,102 86	6 33	....	9,923.81
Watonwan	40 00	3,158.99	17,554 95	5 55	....	3,198.99
Wilkin	8.254 61	22,145.39	111,064 18	5 01	....	30.400.00
Yellow Medicine	40.00	13,758 79	76,394 59	5 55	....	13,798.79
Total	157,095.78	311,259.46	$1,649,656 64	....	31,331.27	499,686 51

STATEMENT OF THE SALES OF INTERNAL IMPROVEMENT LANDS EACH YEAR.

YEAR SOLD.	Number of Acres Sold.	Purchase Money.	Average Price per Acre.
1873	2,135.51	$ 14,224 26	$ 6 64
1874	3,044.79	17,325 70	5 68
1875	2,589.17	14,113 01	5 45
1876	615 57	3,412 93	5 54
1877	6,682.38	35,194 96	5 26
1878	50,872.97	292,332 65	5 74
1879	10,456.75	58,503 88	5 60
1880	26,999.28	153,566 41	5 68
1881	25,341.19	135,521 25	5 34
1882	28,439.59	160,832 06	5 65
Total	157,177.20	$885,027 11	

Deduct forfeited lands resold	294.15	$2,574 30
Total sales of land	156,883.05	$882,452 81
Interest on land contracts		145,258 45
Interest on bonds		33,227 50
Amount paid on lands forfeited and resold		386 59
Sales of pine timber		33,595 58
Interest on stumpage accounts		1,274 06
Total amount of funds		$1,096,194 99

STATEMENT OF THE CONDITION OF THE SEVERAL GRANTS OF SWAMP LANDS.

Date of Act Making Grant.	GRANTEE.	Number of Acres Claimed by Grantee	Number of Acres Set Apart or Conveyed.	Number of Acres Required to Fill Grant.
March 8, 1861.	Lake Superior & Mississippi R R. Co.	694,400.00	609,409.80	84,990.20
" 8, 1861.	Taylor's Falls & Lake Super'r R. R. Co.	87,360.00	....	87,360.00
" 12, 1861.	Agricultural College	4.684.17	4.684.17	....
" 7, 1862	Madelia & Sioux Falls Wagon Road..	4,563.71	4,563.71	....
" 6, 1863.	St. Paul & Chicago Railway Co	461,440 00	461,247.53	192.47
Feb. 11, 1865.	Minneapolis & St. Cloud R. R.. ..	480,000.00	....	480,000.00
" 11, 1865.	Minneapolis & St. Cloud R. R., Hinckley branch	425,664.00	... .	425,664.00
" 13, 1865.	Insane Asylum	100.000.00	....	100,000.00
" 13, 1865.	Deaf, Dumb and Blind Asylum.	100,000.00	....	100,000.00
" 13, 1865.	State Prison	100.000.00	....	100,000.00
" 13, 1865.	Winona Normal School........	75,000 00	....	75,000.00
" 13, 1865.	Mankato Normal School.............	75,000.00	....	75,000.60
" 13, 1865.	St. Cloud Normal School	75,000.00	....	75,000.00
" 16, 1865.	Southern Minnesota R. R. Co..........	35,242.29	35,242.29	....
March 2, 1865.	Cannon River Manufacturers' Ass'n..	25,000 00	18,456.74	6,543.26
" 2, 1865.	Minnesota Central R. R. Co...........	275,000.00	....	275,000.00
" 3, 1865.	Soldiers' Orphan Asylum........	Remaining	Swamp	Lands.
" 9, 1875.	Duluth & Winnipeg R. R.............	2,108,000.00	....	2,108,000.00
" 12, 1878.	Minnesota Northern R R............	98,668.21	....	98,668.21
Jan. 4, 1882.	Constitutional Amendment donating Swamp Lands for educational and charitable purposes.............. ..	Remaining	Swamp	Lands.
	Totals............................	5,225,022.38	1,133,604.24	4,091,411.14

DEEDS OF CONGRESSIONAL LANDS EXECUTED TO RAILROAD COMPANIES DURING THE YEARS 1881 AND 1882.

Date of Deed.	NAME OF COMPANY.	Acres Conveyed.
Feb. 16, 1881..	Winona & St. Peter Railroad Co.............	72,157.29
Sept. 19, 1881..	St. Paul, Minneapolis & Manitoba Railway Co...............	83,667.45
Oct. 24, 1881..	Winona & St. Peter Railroad Co...	1,860.96
Dec. 27, 1881..	St. Paul, Minneapolis & Manitoba Railway Co..	960.00
Dec. 27, 1881.	St. Paul, Minneapolis & Manitoba Railway Co...............	1,181 55
May 5, 1882..	St. Paul & Sioux City Railroad Co..............................	508.94
Aug. 8, 1882..	Winona & St. Peter Railroad Co................................	780.00
	Total...	111,116.19

STATEMENT OF CONGRESSIONAL LANDS CONVEYED BY THE STATE TO RAILROAD COMPANIES.

NAME OF COMPANY.	1864.	1865.	1866.	1867.	1868.	1869.	1870.	1871.	1872.	1873.
St. Paul, Minneapolis & Manitoba	152,057.89	76,422.07	153,633.72	75,271.16		300,478.59		100,695.42	633,821.56	13,282.35
Sillwater & St. Paul								63,852.46		
St. Paul, Stillwater & Taylor's Falls									44,246.27	
Winona & St. Peter	153,407.05			35,682.69	176,066.11				252,356.02	
St. Paul & Sioux City		74,882.46	125,091.43		279,818.03	5,510.67	108,695.60	213,495.45	24,322.50	
Sioux City & St. Paul								229,832.91		
Lake Superior & Mississippi						161,761.39	323,173.58			150,529.42
Southern Minnesota & Extension			50,139.45	66,815.71		61,487.12		15,390.72	65,850.61	56,321.37
Minnesota Central			76,768.37		90,896.97				2,598.38	
Hastings & Dakota										
Totals	305,464.94	151,304.53	405,632.97	177,769.56	546,781.11	529,237,77	431,869.18	623,266.96	1,023,195.34	220,133.14

STATEMENT OF CONGRESSIONAL LANDS CONVEYED BY THE STATE TO RAILROAD COMPANIES.—Concluded.

NAME OF COMPANY.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	Total.
St. Paul, Minneapolis & Manitoba	12,584.77	12,459,42	7,396 66	758 613.08	2,668.69		386,748.66	35,809.00		2,721,943.04
Stillwater & St. Paul		1,261.18								65,113.64
St. Paul, Stillwater & Taylor's Falls										44,246.27
Winona & St. Peter	533,859.70	515,695.61		11,737.29		2,929.52		74,018.25	780.00	1,756,532.24
St. Paul & Sioux City		4,442.37	18,040,93						508.94	854,808.38
Sioux City & St. Paul	3,659.19		1,024.78							234,516.88
Lake Superior & Mississippi	68,177.43	124,277.07				19,666.58				847,585.47
Southern Minnesota & Extension		12,543.40	4,803.47	5.006.74	200.00		170,073.12			508,631.71
Minnesota Central	950.09	2,292.30	40.00							173,546.11
Hastings & Dakota	24,958.94					142,956.78	144,819.11			312,734.83
Totals	644,190.12	672,971.35	31,305.84	775,357.11	2,868,69	165,552.88	701,640.89	109,827.25	1,288.94	7,519,658.57

STATEMENT OF THE TOTAL EXPENSES OF THE STATE LAND OFFICE IN THE MANAGEMENT OF SCHOOL, AGRICULTURAL COLLEGE AND INTERNAL IMPROVEMENT LANDS.

YEARS.	Appraising and Explor'g.	Surveying.	Advertising.	Salaries of officers.	Plats and Books.	All other Expenses	Total.
1862	$2,662 50	$1,022 82	$ 378 00	$ 500 00	740 40	$ 324 31	$6,628 03
1863	602 98	421 00	839 55	900 00	240 00	714 46	3,717 99
1864	1,109 04	143 40	1,088 74	1,100 00	21 31	597 06	4,059 55
1865	158 00	467 90	771 16	1,100 00	80 00	266 62	2,843 68
1866	2,508 50	194 00	1,031 38	1,300 00	31 94	310 24	5,376 06
1867	624 11	334 85	719 40	2,200 00	144 75	635 83	4,658 94
1868	2,234 50	34 00	1,047 29	2,200 00	35 60	102 00	5,653 39
1869	755 00	254 14	1,158 77	2,200 00	....	711 45	5,079 36
1870	138 00	28 80	1,052 83	2,200 00	....	162 25	3,581 88
1871	327 00	451 07	604 28	2,200 00	....	241 95	3,824 30
1872	842 25	159 00	431 55	2,200 00	770 30	614 00	5,017 10
1873	1,879 50	944 00	638 10	2,200 00	434 90	449 85	6,546 35
1874	1,179 13	24 00	561 98	2,200 00	504 15	495 60	4,964 86
1875	1,943 00	64 00	548 19	2,200 00	294 35	493 00	5,542 54
1876	2,831 70	....	450 22	2,200 00	213 40	1,750 85	7,446 17
1877	1,631 90	....	467 96	2,200 00	159 21	356 16	4,815 23
1878	6,622 92	....	1,243 48	2,500 00	208 30	1,288 43	11,863 13
1879	4,035 26	....	519 22	3,176 50	109 56	103 55	7,944 03
1880	4,316 62	....	482 83	3,149 74	....	33 00	7,982 19
1881	5,897 86	....	454 76	3,700 00	....	959 04	11,011 66
1882	3,293 00	....	371 99	3,700 00	285 00	1,520 03	9,170 02
Total	$45.592 77	$4,542 98	$14,861 68	$45,326 24	$5.273 11	$12,129 68	$127,726 46

STATEMENT "A"—Condition of State Tax Accounts with the Several Counties November 30, 1881.

COUNTIES.	Delinque't Taxes of 1880 and Prior Years	Total Credits During the Year.	Tax and Seed Grain Debit Balances on State Auditor's Books.		Balances Nov. 30, 1881.
			Taxes.	S'd Grain	
Aitkin	$ 1,210 42	$ 844 67	$ 365 75	....	$ 365 75
Anoka	8,625 52	6,110 13	2,515 39	....	2,515 39
Becker	2,457 35	1,929 85	371 72	$ 155 78	527 50
Benton	6,444 78	1,784 70	4,660 08	....	4,660 08
Big Stone	1,887 45	458 63	367 21	1,061 61	1,428 82
Blue Earth	15,179 83	14,318 74	432 59	428 50	861 09
Beltrami	183 51	168 36	15 15	....	15 15
Brown	10,969 24	6,793 26	1,972 23	2,203 75	4,175 98
Cass	3,642 17	3,488 41	153 76	....	153 76
Carlton	957 52	525 47	432 05	....	432 05
Carver	7,419 48	6.478 35	941 13	....	941 13
Chippewa	7.231 72	2.833 59	405 64	3,992 49	4.398 13
Chisago	12,097 71	8,799 47	3.298 24	....	3,298 24
Clay	6,646 26	2,942 75	3,528 01	175 50	3,703 51
Cook	48 34	30 87	17 47	....	17 47
Cottonwood	8.259 75	2,783 14	342 73	5,133 88	5,476 61
Crow Wing	1,238 04	692 99	545 05	....	545 05
Dakota	21.631 53	15.800 61	5,830 92	....	5,830 92
Dodge	9,023 88	8.082 41	941 44	....	941 44
Douglas	6,663 04	5.171 82	392 27	1,098 95	1,491 22
Faribault	9.508 91	7,603 1	1.867 49	38 27	1,905 76
Fillmore	20.487 62	16.001 73	4,485 89	....	4.485 89
Freeborn	11.841 06	10.181 03	1.660 03	....	1,660 03
Goodhue	22.136 75	21,035 15	1,101 60	....	1,101 60
Grant	3,000 42	1.630 06	269 64	1,100 72	1,370 36
Hennepin	77,120 91	73 834 19	3.286 72	....	3.286 72
Houston	13.892 89	8.481 31	5,411 58	....	5,411 58
Isanti	2.690 66	2.527 26	163 40	....	163 40
Itasca	1,346 63	1.051 26	295 37	....	295 37
Jackson	7.435 16	2,980 31	448 56	4,006 29	4.454 85
Kanabec	2.776 57	1.686 16	1,090 41	....	1,090 41
Kandiyohi	39.032 88	13,952 06	420 56	24,660 26	25,080 82
Kittson	212 70	181 03	31 67	....	31 67
Lac qui Parle	3,461 02	2.376 35	219 20	871 47	1,090 67
Lake	839 51	557 01	282 50	....	282 50
Le Sueur	10,567 34	6.109 42	4,457 92	....	4,457 92
Lincoln	755 00	579 22	175 78	40 00	215 78
Lyon	11,1 9 83	1,982 62	4.943 24	4,203 97	9,147 21
McLeod	9 458 49	6,859 52	2,175 19	423 78	2,598 97
Marshall	205 35	....	205 35	....	205 35
Martin	4,025 81	3.188 36	370 04	620 57	837 45
Meeker	12,155 72	9,530 16	832 22	1,793 34	2.625 56
Mille Lacs	4.274 36	726 38	3,547 98	....	3.547 98
Morrison	13,438 71	2,353 54	11,085 17	....	11,085 17
Mower	25 082 07	11.327 14	13,754 93	....	13,754 93
Murray	4.530 97	3,211 50	152 42	1,167 05	1,319 47
Nicollet	13.065 79	10.594 81	1,149 08	1,321 90	2.470 98
Nobles	6 576 53	2.506 58	682 10	3,387 85	4,069 95
Olmsted	17,512 92	16 338 15	1,174 77	....	1,174 77
Otter Tail	11.521 34	9,846 65	883 53	791 16	1,674 69
Pine	10,557 32	2,576 85	7,980 47	....	7,980 47
Pipestone	425 68	255 85	169 83	....	169 83
Polk	3,661 40	3.141 24	520 16	....	520 16
Pope	7.255 79	4.484 16	800 08	1,971 55	2.771 63
Ramsay	117.426 66	60,502 23	56,924 43	....	56,924 43
Redwood	6.199 66	4,443 51	1,190 11	566 04	1.756 15
Renville	26.040 86	4,631 18	2,439 02	18,670 66	21,109 68
Rice	17,545 88	12.672 42	4,873 46	....	4.873 46
Rock	4.040 70	2 065 21	251 54	1,123 95	1,375 49
St. Louis	4,745 32	2.905 51	1.839 81	....	1,839 81
Scott	9,804 56	6,293 74	3,510 82	....	3,510 82
Sherburne	4.562 57	3,573 31	989 26	....	989 26
Sibley	9.060 27	7.068 90	798 54	1,132 83	1.931 37
Stevens	4.626 91	2,636 98	399 48	1,590 45	1,989 93
Steele	8,695 69	8.424 40	271 29	....	271 29
Stearns	16.296 27	15,120 32	859 44	316 51	1,175 95
Swift	10.702 28	4,460 85	446 65	5,794 78	6,241 43
Traverse	350 45	282 61	67 84	....	67 84
Todd	7,192 50	5,629 24	1.282 58	280 68	1,563 26
Wabasha	14,632 59	11,405 08	3,227 51	....	3,227 51
Wadena	960 06	712 20	247 86	....	247 86
Waseca	8.150 53	7,467 54	682 99	....	682 99
Washington	22,363 67	13,477 34	8,886 33	....	8.886 33
Watonwan	5,196 67	2,330 32	1,106 23	1,730 12	2.836 35
Wilkin	1,998 59	1,617 85	351 58	29 16	380 74
Winona	18.400 86	17,165 59	1,235 27	....	1.235 27
Wright	8,510 52	7,177 89	1.283 21	49 42	1,332 63
Yellow Medicine	4,313 13	3,236 51	280 42	796 20	1,076 62
Totals	$ 845,558 82	$ 555,613 19	$ 197,369 38	$92,729 44	$ 289,945 66

STATEMENT "A"—Concluded.

Condition of State Tax Accounts with the Several Counties November 30th, 1882.

COUNTIES.	Delinqu'nt Taxes of 1881 and prior years	Total credits during the year.	Tax and seed grain debit balances on State Auditor's books		Balances November 30th, 1882.
			Taxes.	Seed grain	
Aitkin	$ 669 61	$ 259 24	$ 419 37	$	$ 419 37
Anoka	5,109 46	3,074 00	2,035 46	....	2,035 46
Becker	2,046 73	1,717 56	222 75	106 42	329 17
Benton	5,876 90	5,014 94	861 96	....	861 96
Big Stone	2,231 79	827 37	342 81	1,061 61	1,404 42
Blue Earth	11,563 43	10,885 85	384 58	293 00	677 58
Beltrami	144 06	136 09	7 97	....	7 97
Brown	8,642 52	4,744 09	2,075 28	1,823 15	3,898 43
Cass	1,186 13	887 71	298 42	....	298 42
Carlton	996 60	782 34	214 26	....	214 26
Carver	5,522 37	4,666 22	856 15	....	856 15
Chippewa	6,085 52	3,220 02	362 07	2,503 43	2,865 50
Chisago	5,817 42	2,646 11	3,171 31	....	3,171 31
Clay	6,391 81	3,597 70	2,623 06	171 05	2,794 11
Cook	45 94	22 34	23 60	....	23 60
Cottonwood	7,141 45	1,648 91	358 66	5,133 88	5,492 54
Crow Wing	1,129 72	526 33	603 39	....	603 39
Dakota	14,852 37	12,033 64	2,818 73	....	2,818 73
Dodge	6,756 43	5,926 32	830 11	....	830 11
Douglas	4,842 55	4,287 97	150 18	404 40	554 58
Faribault	7,904 17	6,427 42	1,458 48	18 27	1,476 75
Fillmore	16,486 27	12,774 67	3,711 60	....	3,711 60
Freeborn	8,993 31	7,385 36	1,607 95	....	1,607 95
Goodhue	16,824 78	16,758 83	65 95	....	65 95
Grant	2,603 67	1,644 98	130 71	827 98	958 69
Hennepin	60,916 07	59,218 34	1,697 73	....	1,697 73
Houston	11,550 53	6,624 04	4,926 49	....	4,926 49
Isanti	1,460 66	1,289 76	170 90	....	170 90
Itasca	652 17	296 77	355 40	....	355 40
Jackson	6,201 06	1,917 48	453 29	3,830 29	4,283 58
Kanabec	1,887 15	846 04	1,041 11	....	1,041 11
Kandiyohi	29,516 47	12,147 54	401 46	16,967 47	17,368 93
Kittson	420 81	363 17	57 64	....	57 64
Lac qui Parle	2,706 97	1,911 68	140 31	654 98	795 29
Lake	463 30	213 67	249 63	....	249 63
Le Sueur	9,331 76	4,808 25	4,523 51	....	4,523 51
Lincoln	804 08	520 14	243 94	40 00	283 94
Lyon	10,914 67	1,915 79	5,095 26	3,903 62	8,998 88
McLeod	6,848 50	4,439 54	2,081 18	327 78	2,408 96
Marshall	622 88	415 80	207 08	....	207 08
Martin	3,118 74	2,152 41	345 76	620 57	966 33
Meeker	7,074 76	5,068 54	844 17	1,162 05	2,006 22
Mille Lacs	4,342 72	2,089 51	2,253 21	....	2,253 21
Morrison	13,825 26	3,733 33	10,091 93	....	10,091 93
Mower	22,372 25	11,030 67	11,341 58	....	11,341 58
Murray	2,468 01	1,385 06	92 47	990 48	1,082 95
Nicollet	7,526 16	5,517 54	867 83	1,140 79	2,008 62
Nobles	5,803 43	3,144 42	659 17	1,909 84	2,659 01
Olmstead	13,617 59	12,813 00	804 59	....	804 59
Otter Tail	7,323 79	6,662 65	43 37	617 77	661 14
Pine	8,788 01	3,023 70	5,764 31	....	5,764 31
Pipestone	572 35	390 31	182 04	....	182 04
Polk	4,632 44	3,741 08	891 36	....	891 36
Pope	4,770 82	2,981 99	590 59	1,198 24	1,788 83
Ramsey	103,074 81	48,922 06	54,152 75	....	54,152 75
Redwood	4,317 94	2,611 16	1,178 16	528 62	1,706 78
Renville	24,613 41	4,618 58	3,586 24	16,408 59	19,994 88
Rice	15,812 18	11,044 90	4,767 28	... .	4,767 28
Rock	2,922 64	1,554 82	255 00	1,112 82	1,367 82
St. Louis	4,372 24	3,676 17	696 07	....	696 07
Scott	8,133 58	4,628 18	3,505 40	....	3,505 40
Sherburne	2,159 82	1,183 27	976 55	....	976 55
Sibley	6,522 06	5,100 10	377 53	1,044 43	1,421 96
Stearns	9,671 42	8,928 30	521 53	221 59	743 12
Steele	6,097 69	5,818 31	279 38	....	279 38
Stevens	3,877 52	2,117 32	477 97	1,282 23	1,760 20
Swift	8,486 71	2,851 16	288 18	5,347 37	5,635 55
Todd	3,388 13	1,775 47	1,360 33	252 33	1,612 66
Traverse	660 22	405 58	254 64	....	254 64
Wabasha	11,014 79	9,091 26	1,923 53	....	1,923 53
Wadena	880 83	631 56	249 27	....	249 27
Waseca	5,890 26	5,203 07	687 19	....	687 19
Washington	18,163 00	10,162 84	8,000 16	....	8,000 16
Watonwan	4,424 04	1,747 47	946 45	1,730 12	2,676 57
Wilkin	1,814 34	1,583 48	201 70	29 16	230 86
Winona	16,118 95	14,853 17	1,265 78	....	1,265 78
Wright	6,668 89	5,785 26	834 21	49 42	883 63
Yellow Medicine	2,878 89	2,209 94	149 19	519 76	668 95
Totals	$672,363 78	$429,035 66	$168,936 31	$74,323 51	$243,310 12

STATEMENT "B."

Condition of Seed Grain Accounts November 30, 1882.

COUNTIES.	Loan of 1877.	Amount Repaid.	Amount Unpaid.	Loan of 1878.	Amount Repaid.	Amount Unpaid.	Debit Balances of Loans of 1877 and 1878.
Becker	$1,470 00	$1,383 12	$ 86 88	$ 339 00	$ 319 46	$ 19 54	$ 106 42
Big Stone	966 00	10 50	955 50	291 50	185 39	106 11	1,061 61
Blue Earth	....	....	....	2,943 00	2,650 00	293 00	293 00
Brown	3,260 25	2,481 10	779 15	6,847 00	5,803 00	1,044 00	1,823 15
Chippewa	2,699 00	1,846 85	852 15	7,970 50	6,319 22	1,651 28	2,503 43
Clay	252 00	124 50	127 50	90 00	46 45	43 55	171 05
Cottonwood	4,293 00	1,584 18	2,708 82	3,016 50	591 44	2,425 06	5,133 88
Douglas	1,113 00	985 60	127 40	5,935 50	5,658 50	277 00	404 40
Faribault	....	....	....	1,020 50	1,002 23	18 27	18 27
Grant	1,638 00	1,139 04	498 96	826 00	496 98	329 02	827 98
Jackson	4,986 00	2.155 79	2.830 21	2,334 50	1,334 42	1.000 08	3.830 29
Kandiyohi	5,922 00	4,390 33	1,531 67	29,475 50	14.039 70	15,435 80	16,967 47
Lac qui Parle	609 00	451 00	158 00	2,582 00	2,085 02	496 98	654 98
Lincoln	300 00	260 00	40 00	....	....	....	40 00
Lyon	3,992 00	1,830 85	2,161 15	2,479 50	737 03	1,742 47	3,903 62
McLeod	546 00	231 61	314 39	4,911 00	4,897 61	13 39	327 78
Martin	1,290 00	873 75	416 25	1,150 25	945 93	204 32	620 57
Meeker	273 00	210 00	63 00	8.447 00	7,347 95	1,099 05	1.162 05
Murray	4,590 45	4,056 25	534 20	602 50	146 22	456 28	990 48
Nicollet	275 00	140 60	134 40	8,375 60	7,369 21	1,006 39	1,140 79
Nobles	3,686 00	2,417 96	1,238 04	1.686 50	924 70	761 80	1,999 84
Otter Tail	3.321 00	2,829 00	492 00	5.093 50	4.967 73	125 77	617 77
Pope	1.491 00	1.249 53	241 47	6.220 00	5,263 23	956 77	1,198 24
Redwood	3.866 00	3,617 40	248 60	2,574 00	2,293 98	280 02	528 62
Renville	7,629 15	1.607 85	6,021 80	12,200 50	1,813 71	10,386 79	16.408 59
Rock	4,209 00	3,104 26	1,104 74	84 00	75 92	8 08	1.112 82
Sibley	1.323 00	786 86	536 14	4,133 00	3,624 71	508 29	1,044 43
Stearns	1,230 00	1.187 63	42 37	8.995 50	8.816 28	179 22	221 59
Stevens	1,659 00	1.054 25	604 75	2.629 50	1,952 02	677 48	1,282 23
Swift	3,535 65	2,634 29	901 36	7,900 50	3.454 49	4,446 01	5.347 37
Todd	181 00	80 44	100 56	2.200 00	2.048 23	151 77	252 33
Watonwan	798 00	296 61	501 39	2,453 50	1,224 77	1,228 73	1,730 12
Wilkin	462 00	462 00	....	73 00	43 84	29 16	29 16
Wright	....	....	....	801 00	751 58	49 42	49 42
Yellow Medicine	2.100 00	1,889 53	210 47	2,660 00	2,350 71	309 29	519 76
Totals	$73,965 50	$47,402 18	$26,563 32	$149,341 85	$101,581 66	$47,760 19	$74,323 51

STATEMENT "C."—Abstract of Assessment of Personal Property in the Several Counties in Minnesota, as Equalized by the State Board, 1881.

	COUNTIES.	No. persons assessed excl. of firms.	1. HORSES.								
			1 year old.			2 years old.			3 yrs old and over.		
			No.	Value dollars.	Av. value	No.	Value dollars.	Av. value	No.	Value dollars	Av. value
1	Aitkin	43	1	$ 15	$15 00	.....	.....	.....	69	$ 5,750	$83 33
2	Anoka	1,004	133	2,888	21 71	176	$ 6,266	$35 60	1,587	104,078	65 58
3	Becker	894	123	3,056	24 85	102	3,781	37 07	1,022	70,000	68 49
4	Benton	623	61	1,389	22 77	56	1,939	34 62	695	42,887	61 70
5	Big Stone	952	72	1 550	21 50	40	1,437	35 89	1,241	77,824	62 71
6	Blue Earth	4,017	1,087	26,151	24 06	970	35,050	36 13	7,359	442,242	60 10
7	Brown	2,156	551	12,330	22 13	616	23,388	25 30	3,366	209,369	61 95
8	Carlton	125	2	65	32 50	4	145	36 25	144	8,799	61 10
9	Carver	2,240	407	8,158	20 04	365	13,875	38 01	3,299	214,061	64 88
10	Cass	39	3	80	26 66	4	165	41 25	74	4,830	65 27
11	Chippewa	1,240	256	5,619	21 95	198	6,880	34 75	1,963	119,376	60 20
12	Chisago	1,401	108	2,437	22 56	115	4,021	34 96	1,365	82,582	60 50
13	Clay	1,152	115	2,300	20 00	105	3,675	35 00	1,871	124,421	66 50
14	Cook	1	.....	.....	.....	1	100	100 00	.....	.....	.....
15	Cottonwood	1,197	239	5,965	24 95	229	8,634	37 70	2,065	130,303	63 04
16	Crow Wing	353	6	160	26 66	10	715	71 50	198	15,655	80 69
17	Dakota	2,748	783	15,724	20 08	682	24,509	35 94	6,284	413,878	65 86
18	Dodge	2,181	639	12,748	19 95	555	19,526	35 18	4,788	321,653	67 18
19	Douglas	1,936	347	7,301	21 07	3 9	11,097	32 64	2,432	159,694	65 61
20	Faribault	2,577	842	19,343	22 97	701	24,579	35 06	5,120	343,483	67 08
21	Fillmore	.....	1,398	34,807	24 90	1,343	47,529	35 39	8,383	549,922	65 60
22	Freeborn	2,831	852	17,081	20 05	801	29,101	36 32	5,980	392,299	65 93
23	Goodhue	4,664	1,173	25,609	21 82	847	30,898	36 48	9,618	625,542	65 03
24	Grant	690	133	2 937	22 08	121	4,228	34 94	1,243	81,707	65 73
25	Hennepin	7,778	478	11,444	23 94	511	21,779	42 62	9,428	647,045	68 63
26	Houston	2,243	665	14,720	22 11	580	20,675	35 64	4,530	275,017	60 71
27	Isanti	1,127	62	1,318	21 24	61	2,154	35 31	1,070	64,499	60 28
28	Jackson	1,048	229	4,943	21 59	207	6,992	33 83	1,518	91,529	60 25
29	Kanabec	102	5	100	20 00	7	220	31 42	79	5,873	74 35
30	Kandiyohi	1,998	545	13,620	24 99	449	17,088	38 06	3,737	243,189	65 08
31	Kittson	286	11	226	20 51	13	490	37 69	283	20,953	74 04
32	Lac qui Parle	1,133	188	3,823	20 33	158	5,254	33 29	2,018	124,692	61 79
33	Lake	15	.....	.....	.....	.....	.....	.....	5	346	69 12
34	Le Sueur	2,627	462	11,646	25 20	414	14,786	35 71	4,041	263,387	65 17
35	Lincoln	742	147	4,759	32 20	.....	.....	.....	917	59,951	65 42
36	Lyon	1,141	212	4,362	20 57	174	6,180	35 52	2,200	140,404	63 01
37	McLeod	2,241	534	11,769	22 03	433	15,733	36 34	3,555	236,115	66 41
38	Marshall	228	7	156	22 28	10	370	36 96	344	25,078	72 90
39	Martin	1,419	289	6,788	23 48	239	8,760	36 65	2,112	136,420	64 58
40	Meeker	2,100	478	10,980	22 75	420	14,847	35 35	3,669	228,739	62 34
41	Mille Lacs	231	19	369	19 40	33	1,169	33 42	322	20,006	62 13
42	Morrison	1,158	88	2,129	24 45	90	3,300	36 66	1,437	89,304	62 15
43	Mower	2,947	787	17,108	21 85	775	28,076	36 23	6,198	393,392	63 46
44	Murray	958	125	2,743	21 93	146	5,235	35 92	1,262	81,789	64 81
45	Nicollet	2 039	862	22,046	25 57	821	29,496	35 92	4,041	266,651	65 98
46	Nobles	1,142	155	3,407	21 98	178	6,396	35 92	1,614	100,331	62 16
47	Olmsted	3,090	1,069	23 824	22 28	978	36,336	37 05	7,565	486,667	64 33
48	Otter Tail	3,692	626	13,846	22 11	515	18,311	35 55	4,960	312,123	63 00
49	Pine	265	2	40	20 00	9	320	35 55	152	11,446	75 30
50	Pipestone	788	52	1,090	20 96	32	1,128	35 26	1,034	66,133	63 94
51	Polk	2,866	183	3,660	20 00	192	7,720	40 00	4,909	326,449	66 50
52	Pope	1,352	326	7,074	21 70	284	10,271	24 11	2,305	146,262	57 41
53	Ramsey	3,640	86	1,982	23 04	111	4,820	43 42	3,195	220,802	69 10
54	Redwood	1,256	205	4,492	21 91	179	6,488	36 20	104	118,873	60 73
55	Renville	2,296	625	13,125	15 60	695	25 020	36 00	3,733	223,980	60 00
56	Rice	3,134	822	16,440	20 00	717	25,812	36 00	6,031	402,819	66 79
57	Rock	792	199	4,252	21 36	149	5,341	35 83	1,713	108,814	63 51
58	St. Louis	292	3	70	23 32	6	220	36 66	224	13,865	61 90
59	Scott	2,207	389	8,611	22 11	345	12,863	37 28	3,456	223,476	64 65
60	Sherburne	950	143	3,081	21 55	115	4,100	35 65	1,338	83,507	62 41
61	Sibley	1,932	675	13,510	20 01	540	18,893	34 99	3,795	241,012	63 50
62	Stearns	3,830	928	18,807	20 27	864	31,838	36 85	5,617	353,933	63 01
63	Steele	2,028	734	16,850	22 94	630	22,856	36 28	4,650	257,573	55 65
64	Stevens	913	75	1,619	21 60	80	2,852	35 64	1,773	113,359	60 90
65	Swift	1,469	225	4,570	20 30	188	6,635	35 23	2,522	164,021	65 03
66	Todd	1,257	166	3,550	21 39	169	6,298	34 91	1,372	86,968	63 39
67	Traverse	512	23	495	21 56	28	977	34 91	835	54,499	65 27
68	Wabasha	2,354	423	9,131	21 56	521	18,945	36 40	4,815	302,074	62 73
69	Wadena	533	19	433	22 79	23	820	35 65	551	37,177	67 47
70	Waseca	2,058	741	14,879	20 08	580	21,106	36 39	4,044	261,994	64 78
71	Washington	1,827	228	5,598	24 55	187	7,533	40 28	3,617	253,242	70 01
72	Watonwan	1,036	281	7,044	25 06	238	8,364	35 22	1,797	109 080	60 72
73	Wilkin	467	51	1,040	20 39	48	1,795	37 39	1,052	72,197	68 63
74	Winona	2,702	627	12,747	20 32	551	19,991	36 28	5,717	380,557	66 56
75	Wright	3,403	455	9,647	21 21	373	13,116	35 17	4,228	257,991	61 02
76	Y'l. Medicine	1,285	276	5,796	21 00	240	8,769	35 43	2,080	130,915	67 94
	Totals	123,423	26,341	$583,483	$22 15	23,656	$860,094	$36 36	213,7[illegible]	$13,926,916	$65 15

STATEMENT

	COUNTIES.	2. CATTLE.								
		One Year Old.			Two Years Old.			Cows.		
		No.	Value.	Av. value	No.	Value.	Av. value	No.	Value.	Av. value
1	Aitkin	36	$ 330	$8 88	21	$ 260	$12 38	69	$ 1,310	$19 00
2	Anoka	1,218	7,475	6 13	1,142	12,098	10 59	2,589	40,536	15 65
3	Becker	1,036	6,256	6 04	795	8,055	10 1.	1,818	28,520	15 69
4	Benton	697	4,280	6 13	714	7,363	10 30	1,351	21,264	15 73
5	Big Stone	460	3,224	7 00	324	3,692	11 40	927	11,185	12 06
6	Blue Earth	5,721	34,807	6 08	3,751	41,414	11 04	9,329	153,915	16 50
7	Brown	3,668	21,876	5 97	2,404	25,182	10 47	5,738	93,578	16 30
8	Carlton	32	210	6 56	22	469	21 31	87	1,797	20 65
9	Carver	3,073	18,424	5 99	2,508	27,558	10 98	5,637	95,857	17 00
10	Cass	13	77	5 90	11	116	10 56	43	845	19 65
11	Chippewa	1,434	8,628	6 02	882	8,716	9 88	2,218	33,652	14 97
12	Chisago	1,542	9,383	6 08	1,349	14,879	11 02	3,020	49,808	16 49
13	Clay	936	5,606	6 00	587	5,870	10 00	1,937	29,055	15 00
14	Cook	......	......	....	......	......	......	......	......	......
15	Cottonwood	1,893	12,185	6 40	1,135	11,897	10 48	3,164	50,136	15 88
16	Crow Wing	103	627	6 08	67	730	10 89	228	4,645	20 37
17	Dakota	2,570	17,783	6 91	1,775	17,826	10 04	5,792	94,442	16 30
18	Dodge	3,194	19,208	6 01	1,807	18,[illegible]09	10 25	4,987	82,182	16 48
19	Douglas	2,621	14,318	6 10	2,019	22,336	11 06	3,842	59,854	13 55
20	Faribault	5,106	35,811	7 04	3,376	40,465	11 98	7,641	114,867	15 03
21	Fillmore	6,258	37,940	6 06	3,582	39,963	10 14	10,052	158,342	15 75
22	Freeborn	4,902	29,363	5 99	2,553	28,4[illegible]5	11 14	8,100	127,156	15 69
23	Goodhue	4,743	28,994	6 11	2,684	26,970	10 05	8,778	141,056	16 06
24	Grant	916	5,619	6 14	594	5,[illegible]92	10 81	1,332	20,854	15 65
25	Hennepin	2,352	16,263	6 91	1,968	22,022	11 19	8,771	154,611	17 63
26	Houston	4,079	24,637	6 04	2,910	32,[illegible]60	11 11	6,267	99,401	15 86
27	Isanti	1,165	7,625	6 11	1,072	11,792	10 99	2,260	35,558	15 73
28	Jackson	2,098	12,683	6 05	1,561	15,767	10 10	2,870	44,407	14 06
29	Kanabec	41	254	6 19	56	598	10 67	166	2,773	16 70
30	Kandiyohi	3,789	22,701	5 97	2,620	31,504	12 02	5,530	85,147	15 40
31	Kittson	121	896	7 40	85	985	11 59	302	4,777	15 81
32	Lac qui Parle	1,422	8,532	6 00	897	9,452	10 53	2,400	37,440	15 60
33	Lake	7	42	6 00	16	160	10 03	17	274	16 11
34	Le Sueur	2,562	17,020	6 64	1,770	19,718	11 14	4,9[illegible]3	76,720	15 36
35	Lincoln	763	5,459	7 14	......	......	....	1,259	19,387	15 57
36	Lyon	1,474	9,090	6 17	819	8,637	10 54	2,281	37,874	15 99
37	McLeod	3,677	22,281	6 04	2,874	34,388	11 97	6,197	98,535	15 89
38	Marshall	100	748	7 48	48	538	11 23	222	3,739	16 84
39	Martin	2,397	15,736	6 52	1,849	2[illegible],476	12 16	3,585	57,570	16 06
40	Meeker	3,035	18,494	6 10	2,264	24,440	10 80	4,964	76,230	15 36
41	Mille Lacs	274	1,715	6 25	293	3,170	10 81	596	8,997	15 09
42	Morrison	945	5,809	6 15	920	10,770	11 70	1,911	29,705	15 55
43	Mower	3,682	22,154	6 01	2,193	23,690	10 87	6,409	96,645	15 07
44	Murray	1,236	7,696	6 37	614	6,859	11 17	1,581	23,975	15 16
45	Nicollet	4,346	26,809	6 16	2,951	30,592	10 35	6,441	99,029	15 35
46	Nobles	1,219	7,380	6 00	837	8,824	10 53	1,993	31,284	15 60
47	Olmsted	4,913	29,583	6 02	2,937	35,314	12 02	7,345	110,563	15 05
48	Otter Tail	4,105	24,751	6 02	2,956	30,226	10 22	6,900	107,364	15 56
49	Pine	30	244	8 13	26	305	11 73	183	3,126	17 08
50	Pipestone	353	2,264	6 24	204	2,146	10 51	657	10,480	15 95
51	Polk	1,818	10,908	6 00	1,277	15,324	12 00	3,470	59,371	17 10
52	Pope	2,575	15,493	6 00	2,031	21,497	10 48	3,282	51,442	14 18
53	Ramsey	493	4,216	8 55	407	5,172	12 70	2,553	49,437	19 36
54	Redwood	1,592	11,230	7 05	1,245	15,166	12 18	2,567	38,705	15 08
55	Renville	3,563	21,378	6 00	2,450	29,400	12 00	5,402	81,0[illegible]0	15 00
56	Rice	3,470	20,820	6 00	2,140	21,400	10 00	6,223	94,896	15 25
57	Rock	1,032	6,591	6 38	561	6,270	11 17	1,539	23,823	15 48
58	St. Louis	76	523	6 90	41	5[illegible]7	12 39	221	3,874	17 48
59	Scott	2,172	13,2[illegible]1	6 10	1,770	18,541	10 46	4,934	77,401	15 69
60	Sherburne	1,438	8,989	6 25	1,426	14 676	10 29	2,434	38,003	15 61
61	Sibley	3,722	22,388	6 01	2,817	29,042	10 20	5,862	95,0[illegible]8	16 21
62	Stearns	5,694	34,855	6 12	4,935	49,671	10 06	9,391	146,258	15 57
63	Steele	2,821	16,985	6 02	1,667	16,772	10 61	5,323	83,684	15 72
64	Stevens	542	3,406	6 29	349	3,544	10 15	1,037	16,221	15 64
65	Swift	1,554	9,389	6 03	1,032	10,876	10 53	2,518	39,184	15 56
66	Todd	1,400	9,545	6 82	1,296	13,393	10 42	2,341	36,738	15 68
67	Traverse	143	8[illegible]9	6 01	111	1,298	11 69	369	5,934	16 09
68	Wabasha	2,428	15,036	6 18	1,449	14,5[illegible]7	10 00	4,340	67,788	16 00
69	Wadena	186	1,150	6 12	154	1,854	12 04	425	7,442	17 50
70	Waseca	2,594	15,576	6 00	1,579	17,264	10 93	5,059	83,084	14 93
71	Washington	1,390	8,411	6 05	1,121	11,409	10 17	4,188	78,149	18 66
72	Watonwan	2,198	13,210	6 00	1,531	15,589	10 18	3,539	53,263	15 05
73	Wilkin	273	1,673	6 13	158	1,750	11 08	522	8,345	15 99
74	Winona	3,469	21,222	6 11	2,448	26,[illegible]67	10 84	5,852	95,940	16 39
75	Wright	3,793	22,838	6 02	3,204	32,416	10 11	6,656	101,469	15 25
76	Yel. Medicine	1,845	11,211	6 08	856	10,530	12 30	2,721	41,833	15 37
	Totals	154,6[illegible]8	$954,503	$6 18	106,947	$1,159,983	$10 84	267,577	$1,248,858	$15 87

"O" Continued.

	2. CATTLE.			3. MULES AND ASSES, of all ages.			4. SHEEP.		
	All other cattle three years old and over.								
	No.	Value.	Average Value.	No.	Value.	Average Value.	No.	Value.	Av'age Value.
1	196	$ 9,840	$50 22	4	$ 350	$87 50	15	$ 45	$3 00
2	599	13,496	22 54	40	2,942	73 57	1,586	3,196	2 02
3	831	26,547	31 95	61	4,435	72 70	1,359	2,677	1 97
4	661	16,420	24 83	13	945	72 67	639	1,242	1 94
5	607	18,666	30 70	78	5,771	73 98	321	599	1 86
6	871	19,738	22 66	163	13,196	72 11	8,553	14,931	1 75
7	526	12,397	23 56	66	4,693	71 11	2,843	5,572	2 00
8	268	8,075	30 13	7	506	72 32	5	15	3 00
9	935	20,594	22 00	155	11,380	73 42	6,129	11,050	1 80
10	78	1,775	22 75	5	370	74 00	8	20	2 50
11	771	23,055	29 90	70	5,034	71 92	1,680	3,201	1 91
12	1,220	29,075	23 83	59	4,281	72 55	3,151	5,699	1 80
13	795	23,731	29 85	311	23,636	76 00	999	1,798	1 80
14	......	....	......	......	....	......	......	....	......
15	682	17,060	25 01	67	4,738	71 78	5,920	11,786	2 00
16	78	2,645	33 91	7	514	73 35	48	154	3 20
17	344	8,306	24 14	190	13,746	72 34	3,514	6,313	1 79
18	278	5,729	20 60	178	12,994	73 00	2,760	5,112	1 85
19	1,590	42,672	26 90	111	8,103	73 00	5,209	9,924	1 90
20	764	18,070	23 65	130	9,265	71 27	13,918	25,081	1 80
21	456	10,444	22 89	229	16,417	71 16	8,610	16,183	1 89
22	631	15,296	24 24	211	15,248	72 26	4,415	9,365	2 12
23	444	10,113	22 78	649	47,636	73 40	7,826	14,761	1 88
24	501	13,922	27 79	73	5,179	70 94	1,184	2,207	1 87
25	1,035	23,992	23 17	316	23,627	74 77	9,052	17,841	1 97
26	693	15,321	22 10	133	9,659	72 61	4,767	8,527	1 78
27	1,249	26,308	21 06	49	3,488	71 16	2,449	4,382	1 79
28	625	13,203	21 10	62	4,479	72 24	5,514	10,531	1 91
29	275	8,826	32 10	4	300	75 00	78	140	1 79
30	1,520	34,855	22 93	131	9,371	71 53	8,110	14,616	1 81
31	215	7,185	33 42	65	4,820	74 15	53	97	1 83
32	950	27,300	28 71	92	6,699	72 81	1,057	1,993	1 89
33	12	276	23 02	......	....	......	39	68	1 75
34	715	14,461	20 22	125	8,873	70 97	5,786	10,766	1 86
35	836	20,286	24 27	48	3,392	70 67	814	1,639	2 00
36	616	14,720	23 89	121	8,691	71 82	3,021	5,676	1 87
37	1,341	29,944	22 33	86	6,283	73 05	5,599	11,181	2 00
38	324	8,931	27 56	69	5,037	72 99	44	86	1 97
39	558	12,367	22 16	89	6,305	70 84	15,016	27,037	1 80
40	1,146	24,447	21 33	185	13,300	71 91	6,023	11,190	1 80
41	294	6,157	20 93	6	450	75 00	254	460	1 80
42	1,137	27,255	23 97	62	4,442	71 32	965	1,731	1 79
43	464	10,070	21 70	171	12,356	72 31	3,864	7,242	1 86
44	435	10,992	25 27	64	4,677	73 01	1,776	3,549	2 00
45	717	15,112	21 07	91	6,661	73 21	5,619	11,447	2 02
46	507	11,161	22 00	103	7,405	71 89	7,649	14,437	1 57
47	559	11,799	21 10	258	18,670	72 31	10,171	20,396	2 00
48	3,525	88,830	25 20	205	14,3[illegible]7	70 00	4,650	8,400	1 80
49	293	11,453	38 88	14	1,000	71 45	7	34	4 86
50	261	6,245	23 93	81	5,897	72 77	116	283	2 43
51	2,451	75,232	32 00	500	35,000	70 00	1,311	2,622	2 00
52	1,332	31,742	23 83	51	3,682	73 63	4,386	7,938	1 81
53	153	4,214	27 54	133	9,699	72 92	148	289	1 94
54	727	17,739	24 40	116	8,439	72 74	5,772	9,999	1 73
55	1,169	28,056	24 00	82	5,904	72 00	4,041	7,274	1 80
56	566	13,832	24 44	185	13,597	73 50	8,038	14,412	1 80
57	215	5,344	24 85	79	5,785	73 23	2,138	4,019	1 84
58	62	1,566	25 20	1	75	75 00	95	186	1 99
59	495	11,928	24 05	119	8,871	74 46	4,574	8,444	1 84
60	945	22,480	23 78	55	3,894	70 80	1,265	2,260	1 79
61	985	23,668	24 02	77	5,760	74 80	6,352	11,437	1 80
62	2,350	57,124	24 31	468	34,289	73 28	7,959	14,312	1 80
63	457	10,674	23 35	115	8,208	71 38	4,574	8,005	1 75
4	398	9,082	22 82	166	11,739	70 71	392	762	1 94
5	1,115	26,766	24 05	117	8,340	71 28	1,447	2,947	2 03
6	1,288	30,602	23 76	66	4,837	73 28	1,821	3,402	1 86
7	331	12,753	38 53	78	5,795	74 30	37	75	2 03
8	225	4,898	21 75	236	17,021	72 00	2,190	3,857	1 83
9	239	6,800	28 45	17	1,215	71 47	87	170	1 95
70	356	8,411	23 62	88	6,239	70 90	3,279	5,721	1 74
71	552	14,204	25 73	261	18,679	71 56	1,797	3,604	2 00
72	559	12,301	22 00	43	3,091	72 00	3,397	6,144	1 80
73	215	7,522	35 31	128	9,818	76 71	125	247	1 98
74	588	12,587	21 40	443	31,317	70 68	5,407	9,960	1 84
75	2,0[illegible]3	44,570	24 17	184	13,146	61 59	11,779	21,9[illegible]4	1 86
76	914	22,059	24 13	91	6,551	71 98	1,719	3,376	1 96
	55,210	$1,365,396	$21 70	9,425	$682,489	$72 40	267,315	$498,075	$1 49

STATEMENT

	COUNTIES.	5. HOGS.			6. WAGONS AND CARRIAGES.		
		No.	Value.	Average Value.	No.	Value.	Average Value.
1	Aitkin	7	$ 40	$ 5 71	13	$ 375	$ 28 85
2	Anoka	1,194	3,972	3 33	962	22,084	22 95
3	Becker	595	1,850	3 11	662	15,692	23 70
4	Benton	857	2,699	3 15	431	9,423	21 86
5	Big Stone	452	1 526	3 38	706	16,341	23 14
6	Blue Earth	10,172	31,279	3 07	3,000	67,224	21 76
7	Brown	2,930	9,086	3 10	1,462	31,485	21 53
8	Carlton	20	105	5 25	57	1,511	26 51
9	Carver	6,370	19,474	3 05	2,127	42,482	19 97
10	Cass	23	91	3 95	38	1,045	27 50
11	Chippewa	891	2,215	2 48	979	19,688	20 11
12	Chisago	1,474	4,737	3 20	1,171	23,987	20 48
13	Clay	640	1,926	3 00	1,026	25,929	25 27
14	Cook	....	....	....	....	....	....
15	Cottonwood	2,123	6,679	3 13	1,055	17,835	17 00
16	Crow Wing	67	383	5 71	114	3,703	32 48
17	Dakota	5,966	17,842	2 99	2,993	61,693	20 61
18	Dodge	5,068	15,345	2 02	1,879	35,401	18 84
19	Douglas	1,925	6,033	3 13	1,551	27,847	17 89
20	Faribault	8,452	25,449	3 01	1,875	41,426	22 09
21	Fillmore	17,973	58,297	3 24	3,430	76,868	22 41
22	Freeborn	6,806	20,990	3 05	2,412	50,222	20 82
23	Goodhue	7,846	25,208	3 20	4,575	104,027	22 74
24	Grant	520	1,563	3 01	658	11,724	17 82
25	Hennepin	6,520	22,497	3 45	6 962	274,268	39 39
26	Houston	19,028	57,825	3 03	2,149	43,936	20 44
27	Isanti	646	2,008	3 10	812	16,626	20 47
28	Jackson	1,920	5,974	2 11	763	14,770	19 36
29	Kanabec	59	184	3 11	64	1,591	24 86
30	Kandiyohi	1,747	5,813	3 32	1,849	37,483	20 27
31	Kittson	149	479	3 22	158	4,952	31 34
32	Lac qui Parle	1,106	3,776	3 41	1,002	20,040	20 00
33	Lake	4	14	3 50	10	197	19 70
34	Le Sueur	9,842	29,673	3 01	2,398	58,906	24 56
35	Lincoln	503	1 859	3 69	568	10,543	19 00
36	Lyon	1,378	4,103	2 97	935	18,123	19 38
37	McLeod	4,036	12 117	3 00	1,920	37,030	19 29
38	Marshall	49	152	3 10	126	3 208	25 46
39	Martin	3,590	11,036	3 08	926	18,472	19 94
40	Meeker	2,208	6,700	3 06	1,866	38,736	20 77
41	Mille Lacs	231	695	3 18	199	3,810	19 11
42	Morrison	1,627	4,970	3 06	800	15,555	19 45
43	Mower	6,820	20,584	2 01	2,431	48,801	20 02
44	Murray	882	2,651	3 00	664	13,361	20 12
45	Nicollet	3,670	11,382	3 11	1,872	40,556	21 66
46	Nobles	1,531	4,732	3 08	846	16,812	19 50
47	Olmsted	7,968	24,749	3 10	3,110	84,118	27 04
48	Otter Tail	3,101	9,807	2 10	3,228	63,380	19 63
49	Pine	82	285	3 47	124	2,927	23 60
50	Pipestone	539	1,813	3 36	477	8,370	17 55
51	Polk	1,245	3,735	3 00	2,328	57 357	24 97
52	Pope	1,154	3,459	3 00	1,196	23,934	20 01
53	Ramsey	1,173	5,221	4 52	2,771	143,354	51 73
54	Redwood	1,358	4,087	3 01	998	23,694	23 74
55	Renville	2,489	7,467	3 00	1,516	31,836	21 00
56	Rice	6,240	18 679	3 00	3,277	92,518	28 23
57	Rock	2,386	7,225	3 02	632	13,686	21 64
58	St. Louis	55	220	4 00	183	4,842	26 40
59	Scott	5,943	18,383	3 08	1,894	39,373	20 78
60	Sherburne	835	2,617	3 12	747	15,406	20 62
61	Sibley	5,349	16,534	3 08	1,816	38,220	21 05
62	Stearns	6,545	20,091	3 07	3,022	75,244	24 90
63	Steele	4,412	13,404	3 04	1,860	38,631	20 77
64	Stevens	752	2,323	3 08	932	20,131	21 60
65	Swift	1,348	4,176	3 09	1,369	27,953	20 41
66	Todd	1,416	4,221	2 99	868	19,582	22 56
67	Traverse	148	510	3 44	288	6,893	23 93
68	Wabasha	7,162	21,426	3 0	2,281	44,144	19 33
69	Wadena	192	580	3 00	361	9,670	26 78
70	Waseca	4 919	14,791	3 00	1,693	34,503	20 37
71	Washington	3,417	12,693	3 71	2,365	73,142	30 92
72	Watonwan	2,084	6,268	3 00	812	15,194	15 00
73	Wilkin	231	819	3 55	443	11,931	26 93
74	Winona	8,185	25 310	3 08	2,837	84,311	29 71
75	Wright	6,203	18,913	3 05	2,433	53,080	21 81
76	Yelllow Medicine	1,018	3,103	3 03	984	19,495	19 80
	Totals	237,987	$739 081	$3 10	109,430	$ 26,227 19	$23 96

"C"—Continued.

	7. Sewing and Knitting Machines.			8. Watches and Clocks.			9. Melodeons and Organs.		
	No.	Value.	Average Value.	No.	Value,	Average Value.	No.	Value.	Average Value.
1	17	$ 335	$19 70	22	$ 520	$23 63	4	$ 255	$63 75
2	376	4.456	11 85	342	2,054	6 01	58	2,295	39 59
3	282	3,483	12 35	652	1,997	3 06	49	2,137	43 61
4	169	1,819	10 75	267	734	2 74	22	896	40 72
5	214	2,462	11 50	439	2,064	4 70	35	1,418	40 50
6	1,244	13,717	11 03	1,587	6,037	3 80	209	9,581	45 84
7	700	7,396	10 56	1,266	2.903	2 28	50	2,024	40 49
8	26	425	16 34	24	230	9 58	15	725	48 33
9	919	9,357	10 18	1,501	2,565	1 70	78	3,175	40 70
10	19	306	16 10	22	157	7 13	5	330	66 00
11	339	3,619	10 68	688	2,160	3 14	40	1,591	39 78
12	482	4,997	10 36	932	3,298	3 53	95	4,036	35 80
13	331	4,139	12 50	686	3,951	5 76	53	3.344	37 72
14	....	....	....	1	10	10 00	....	....	....
15	203	2,246	11 06	617	1,816	2 95	24	905	38 00
16	195	3,063	15 70	286	3,918	13 69	46	3,305	71 84
17	1,068	13,035	12 20	1,310	7,950	6 07	187	7,424	39 70
18	856	8.429	9 85	1,233	5,409	4 39	195	7,900	40 52
19	608	6,589	10 83	935	3 193	3 46	81	3,750	24 30
20	856	8,622	10 07	843	3,462	4 10	144	5,789	40 20
21	1,457	15,945	10 00	1,190	5,723	4 80	311	12.907	41 50
22	888	11.050	12 44	947	3.496	3 69	129	5,388	41 77
23	1,722	18,926	10 99	1,920	9,367	4 88	367	14,934	40 69
24	177	1,827	10 32	454	797	1 76	25	972	38 90
25	4,288	63,106	14 72	5,326	70,327	13 20	866	40,302	46 54
26	821	8,483	10 33	1,220	6,473	5 30	148	5,889	32 55
27	292	3.309	11 33	664	939	1 41	27	1,060	39 26
28	197	2,013	10 21	468	1,143	2 42	20	805	40 25
29	24	293	12 20	73	167	2 28	3	125	41 66
30	689	7,149	10 38	1,490	5,460	3 66	89	3,614	40 61
31	52	627	12 05	131	864	6 59	3	175	58 33
32	255	2,550	10 00	643	1,309	2 03	24	972	40 51
33	6	77	12 83	16	80	5 00	1	45	45 00
34	962	9.915	10 30	1,748	7,448	4 26	122	4,991	40 91
35	154	1,707	11 09	346	1,391	4 00	22	875	39 77
36	360	3,565	9 90	473	1,430	3 02	46	1,875	40 76
37	942	9,932	10 54	1,627	3,018	1 85	114	4,484	39 33
38	31	353	11 39	40	316	7 90	7	305	43 66
39	316	3,300	10 44	311	1,564	5 03	39	1,607	40 89
40	724	7,865	10 87	1,286	3.668	2 85	112	4.612	41 18
41	80	821	10 26	179	312	1 74	19	1,125	59 21
42	370	4.736	12 80	780	2,342	3 00	43	1.736	40 38
43	1,009	10,181	10 09	1,535	5,791	3 77	253	10,211	40 35
44	191	2,301	12 05	485	1,239	2 53	22	880	39 99
45	804	8,973	11 16	857	3,595	4 20	100	4,040	40 40
46	333	3,107	9 32	706	2,294	3 24	56	2,239	39 97
47	1,307	15,548	11 88	1,358	9,383	6 90	348	14,309	41 11
48	1,218	13,666	11 22	1,861	4,977	2 67	106	4,301	40 57
49	102	1.633	16 01	156	833	5 34	16	775	48 44
50	184	1.974	10 73	304	959	3 10	35	1,424	40 84
51	617	7,682	12 45	1,403	6,220	4 43	47	1,956	41 60
52	404	4,359	6 47	949	1,860	1 96	44	1.749	39 75
53	1,491	22,240	14 90	2,610	49.783	19 07	132	6,458	48 93
54	309	3.681	11 91	654	2,787	4 26	44	1,772	40 28
55	495	4,950	10 00	997	1,994	2 00	49	1,960	40 00
56	1,185	12,743	10 75	1,659	12,105	7 30	284	11,886	41 84
57	255	2,685	10 53	380	932	2 45	31	1,277	41 17
58	140	2,129	15 20	246	2,817	11 45	23	920	40 00
59	844	9,718	11 51	1,519	4,416	3 03	102	4,132	40 50
60	419	4,251	10 12	633	1,395	2 20	54	2,288	42 37
61	615	7.743	12 00	1,269	3.274	2 58	27	1,087	40 25
62	1,380	16,584	12 02	2,753	7,413	2 69	145	5,717	39 43
63	662	6,712	10 14	771	5,138	6 66	137	5.538	40 42
64	278	2,941	8 46	552	2.383	4 32	44	1,779	40 41
65	400	4.149	10 37	770	2,601	3 38	38	1,562	41 10
66	363	3,776	10 39	736	1,034	1 40	33	1,350	40 90
67	94	938	9 97	225	957	4 25	15	592	39 38
68	1,022	11,021	10 78	1,130	6,993	6 18	201	7,997	39 77
69	184	2 810	15 27	347	1,720	4 95	29	1,270	43 79
70	746	7,755	10 39	1,378	5,366	3 88	97	4,041	41 66
71	901	11,102	12 32	1,165	11,516	9 88	191	8,005	41 95
72	268	3,227	12 04	660	1,959	2 96	48	1,923	40 06
73	132	1,797	13 61	238	1,373	5 77	20	938	46 90
74	1,250	16,765	13 41	1,404	11,098	7 90	219	9,542	43 57
75	1,192	12.770	10 71	1,813	4,171	2 30	178	7.537	42 34
76	330	3,350	10 15	746	1,892	2 52	55	2,104	30 90
	44,865	$521.306	$11 62	69,253	$364.330	$5 26	7,150	$303,327	$42 40

STATEMENT

	COUNTIES.	10. PIANO FORTES.			11. Household and Office Furniture.	12. Agricultural Tools, Implements and Machinery.
		No.	Value.	Average value.		
1	Aitkin	2	$ 375	$187 50	$ 875	......
2	Anoka	26	2.561	83 35	32.619	$20.700
3	Becker	13	1,295	99 61	18,730	45,496
4	Benton	13	1,271	97 79	9,839	8.715
5	Big Stone	9	884	98 22	13,839	52,939
6	Blue Earth	112	11.638	103 91	110,971	133.333
7	Brown	27	4,250	157 00	42,497	62,099
8	Carlton	2	210	105 00	2,835	157
9	Carver	18	1,785	99 16	50,627	76 417
10	Cass	.....	....	......	1,941	473
11	Chippewa	3	293	97 50	19,323	71,033
12	Chisago	34	3,380	99 41	37.527	26,310
13	Clay	31	4,175	137 86	42,422	91,596
14	Cook	....	......	....	....	....
15	Cottonwood	6	588	98 00	13.808	54,741
16	Crow Wing	30	4.280	142 66	26.660	3.101
17	Dakota	118	12.080	102 38	93.535	126.321
18	Dodge	36	3,723	103 43	49.327	110.635
17	Douglas	11	1.450	131 80	33.481	61 353
20	Faribault	23	2,298	99 91	53.010	90.120
21	Fillmore	68	6,809	100 13	100.542	236.367
22	Freeborn	29	2,888	99 59	46,291	109.138
33	Goodhue	131	13,390	102 21	165,116	234.920
24	Grant	3	305	101 50	8.631	32.695
25	Hennepin	1,070	131,335	122 74	955,043	132,663
26	Houston	31	3,194	103 01	50.160	118,010
27	Isanti	3	300	100 00	14.401	28,045
28	Jackson	5	519	103 75	13.488	30.273
29	Kanabec	....	....	....	2.312	1.595
30	Kandiyohi	21	2,360	112 38	32,359	67,845
31	Kittson	4	650	162 50	9,161	7,414
32	Lac qui Parle	1	150	150 00	13.485	63,164
33	Lake	......	....	......	275	112
34	Le Sueur	35	3,880	110 85	56.220	76,880
35	Lincoln	1	98	98 00	10,207	29,618
36	Lyon	9	899	99 88	17,351	34 260
37	McLeod	24	2,465	102 70	41.405	62,299
38	Marshall	....	....	....	2.373	9.615
39	Martin	14	1,392	99 42	20,158	39,622
40	Meeker	36	3,985	110 69	40,553	68.971
41	Mille Lacs	5	500	100 00	4,424	2,411
42	Morrison	5	499	99 75	17,017	33,625
43	Mower	53	5,316	100 50	81.572	153.986
44	Murray	4	406	101 56	10.938	36.770
45	Nicollet	30	3.085	100 23	61,241	108.161
46	Nobles	25	2,513	100 52	18.772	29.836
47	Olmsted	91	9.667	106 23	126.627	203.210
48	Otter Tail	35	4.108	117 37	47.174	130,540
49	Pine	5	600	120 00	8,658	1.209
50	Pipestone	....	....	....	8,713	26.267
51	Polk	26	2,630	101 00	46,797	146,542
52	Pope	1	25	25 00	13.310	41.900
53	Ramsey	702	84,623	120 54	740,144	22,573
54	Redwood	14	1,400	100 00	19,312	51,543
55	Renville	8	800	100 00	22,776	78,303
56	Rice	172	23,260	135 22	162,036	141,852
57	Rock	13	1,336	102 77	11,031	35,048
58	St. Louis	62	6.575	106 00	31.571	301
59	Scott	30	3.070	102 33	59,487	85.002
60	Sherburne	20	1.985	99 25	14,742	28,612
61	Sibley	21	2.135	101 57	38,461	77,792
62	Stearns	94	9.350	99 47	96,989	133.270
63	Steele	74	7,351	99 34	55,791	97.503
64	Stevens	13	1.325	101 92	15.310	65.722
65	Swift	10	1,000	100 00	22,931	88,320
66	Todd	3	303	102 00	14,448	34.012
67	Traverse	3	306	102 08	7,022	22.235
68	Wabasha	117	12,031	102 84	80 823	125 947
69	Wadena	8	861	107 50	13 970	71.805
70	Waseca	23	2.405	101 56	58,149	84.132
71	Washington	129	16,710	129 53	114.943	99,224
72	Watonwan	16	1,604	100 25	14.723	31,860
73	Wilkin	5	488	97 00	10 652	41,261
74	Winona	145	14,982	103 32	164,078	149,059
75	Wright	20	2,009	100 45	49.726	88,183
76	Yellow Medicine		202	101 25	13,367	41,200
	Totals	3.983	$456,618	$114 64	$4,536,612	$4,987,383

"C"—Continued.

	13. Gold & Silver Plate & Plated Ware.	14. Diamonds & Jewelry.	15. Franchises, Annuities, Royalties, etc.	16. Steamboats, Sailing Vessels, Barges, etc	17. Goods and Merchandise.	18. Material and Manufactured Articles.	19. Manufacturers' Tools, Implements and Machinery, including Engines and Boilers.
1	$	$	$	$ 2,000	$ 6,500	$	$ 310
2	363	60	....	....	68,637	153,077	3.510
3	240	215	....	10	41,948	4,560	6,573
4	79	30	....	....	24.780	570	614
5	346	252	....	2,005	36.629	2.155	916
6	804	415	....	75	214,273	18,860	19,635
7	145	65	....	....	106.660	12,890	24,935
8	10	15	....	....	13.420	12,300	17,715
9	65	30	210	980	116,011	4,169	10,045
10	10	....	....	1,550	2.932	11,450	3.915
11	155	....	....	....	44.785	977	1,842
12	522	45	....	....	67.646	9,469	3,927
13	1,007	580	150	2,000	73,491	13,025	11,705
14	....	....	....	....	625	....	....
15	55	10	....	....	35,460	300	2,145
16	636	732	....	175	55,520	5,172	10,810
17	1,315	200	....	5,300	151,401	29,390	12,629
18	890	70	25	25	93.270	5,020	2,607
19	194	118	....	15	101,260	7,020	10,620
20	281	25	....	25	108.730	10,890	3.930
21	520	155	....	....	239,766	31,375	8.365
22	157	10	....	130	111,389	10,400	1,545
23	2,103	1,020	300	190	290,616	74,191	13,384
24	13	3	50	....	17,514	765	270
25	14,963	22,995	7,190	15.396	2,015.480	1,520.419	218.503
26	208	25	....	2,610	106.228	5,800	3,755
27	12	....	....	100	15,900	1,273	6,075
28	....	....	....	....	25,412	3,405	755
29	34	10	....	445	2.900	50	30
30	....	....	....	....	100,062	1,685	2,790
31	315	....	....	....	19,110	25	160
32	180	35	....	....	6,760	195	900
33	....	1	....	200	500	5,30	1.000
34	....	....	....	110	100,452	7,853	15,890
35	229	40	50	250	21,895	840	955
36	146	50	....	....	63,881	370	3,011
37	138	90	....	....	89,941	5,191	8,335
38	153	10	....	....	21,843	70	50
39	20	21	....	....	29,178	2,710	1,720
40	264	100	15	....	100,463	8,100	7,835
41	585	10	5	....	12.531	120	505
42	....	....	....	300	36.856	4,175	9,319
43	17	17	....	....	142.869	3,290	3,187
44	632	30	....	....	19.618	200	1.818
45	5	100	....	....	86,810	9.040	5.215
46	510	30	96	75	31.744	2.410	3.935
47	206	85	....	....	240,230	27.500	9,068
48	170	....	....	10	130.946	53,445	19.306
49	413	48	....	2,300	7,825	3.120	4,230
50	235	30	....	....	28,701	4.020	934
51	22	25	....	525	85,672	5,718	8,611
52	354	105	50	....	18,016	80	2.165
53	40	5	....	4,850	2,748,745	147,518	214.225
54	29,996	26,881	....	....	36.541	70	1,705
55	76	1	....	....	58,102	674	1.105
56	16	....	....	....	249.266	35,050	25,928
57	5,050	571	300	....	25,710	85	715
58	40	....	300	18.535	83.847	2.650	13.125
59	581	350	....	150	98.739	17.389	9,858
60	75	60	....	....	23,362	6,980	5.397
61	206	75	325	....	74.049	720	5.615
62	5	75	....	100	168.72	19,840	26,831
63	820	215	....	....	100,642	7,930	8,802
64	222	50	....	....	71,628	575	4.407
65	622	400	....	....	60,545	4,338	1.563
66	128	70	....	320	21.45	3,213	6.789
67	25	....	....	....	17,964	25	310
68	130	300	....	5,450	172.232	22.268	9.733
69	983	938	50	....	38.731	1,175	8.295
70	117	45	....	80	99,580	3.670	2,928
71	75	....	....	35.690	196,636	191.380	42 960
72	1,879	3,100	17,000	....	31.283	1.180	1.148
73	55	....	....	....	38.28	2.715	1.415
74	88	20	....	2,734	362.930	197.266	11,820
75	630	410	1,570	320	120,108	3,556	17.715
76	342	190	85	....	47.239	632	1.670
	$71.982	$61.668	$27.751	$105,030	$10.540.456	$2.765.416	$935.983

	COUNTIES.	20. Moneys of banks, bankers, brokers, or stock jobbers.	21. Credits of banks, bankers, brokers, or stock jobbers.	22. Moneys other than bankers, etc.	23. Credits other than bankers, etc.	24. Bonds and stock.
1	Aitkin	....	....	....	....	....
2	Anoka	$ 375	$16,358	$12,786	$41,046	$1,255
3	Becker	11,963	1,270	5,059	7,205	....
4	Benton	1,050	450	1,334	5,356	340
5	Big Stone	8,652	1,100	5,582	6,712	....
6	Blue Earth	3,700	2,615	35,669	191,730	2,000
7	Brown	7,550	38,308	16,954	41,842	1,134
8	Carlton	....	....	....	1,000	....
9	Carver	4,680	1,900	22,158	81,767	1,250
10	Cass	100	330	....	....	....
11	Chippewa	7,022	2,219	10,819	10,559	720
12	Chisago	375	4,034	9,914	47,548	200
13	Clay	141	58,203	10,780	3,171	600
14	Cook	....	....	....	....	....
15	Cottonwood	....	1,150	5,725	3,819	....
16	Crow Wing	1,300	316	1,828	10,600	....
17	Dakota	9,405	8,120	48,134	181,615	10,317
18	Dodge	....	....	35,124	78,770	2,500
19	Douglas	625	14,940	37,887	51,288	2,135
20	Faribault	3,659	6,160	19,788	31,917	2,450
21	Fillmore	852	39,841	73,713	387,522	932
22	Freeborn	....	17,495	46,766	26,357	620
23	Goodhue	30,479	3,554	156,644	453,796	2,450
24	Grant	3,000	600	5,089	2,214	....
25	Hennepin	93,346	56,524	311,259	937,438	174 636
26	Houston	1,065	300	16,709	326,174	9,330
27	Isanti	....	....	1,110	10,118	....
28	Jackson	....	1,000	7,858	10,009	....
29	Kanabec	200	....	....	....	....
30	Kandiyohi	27,631	8,863	18,078	89,036	....
31	Kittson	....	2,000	....	825	....
32	Lac qui Parle	150	650	14,107	6,320	....
33	Lake	....	....	943	....	....
34	Le Sueur	4,900	200	18,546	108,206	2,173
35	Lincoln	2,280	250	1,625	1,412	....
36	Lyon	16,161	1,160	4,515	11,100	300
37	McLeod	15,000	....	20,581	61,520	220
38	Marshall	3,000	....	1,000	....	....
39	Martin	500	....	2 219	14,266	300
40	Meeker	11,120	650	17,755	60,485	240
41	Mille Lacs	4,775	....	....	4,594	....
42	Morrison	5,400	725	1,000	15,076	....
43	Mower	....	2,050	19,070	94,604	500
44	Murray	91	....	2,035	1,145	....
45	Nicollet	....	2,600	5,825	112,367	5,300
46	Nobles	11,906	1,275	4,635	5,312	3,100
47	Olmsted	1,508	25,685	23,835	291,255	2,040
48	Otter Tail	2,200	520	25,612	41,143	1,000
49	Pine	....	320	2,259	675	....
50	Pipestone	607	100	895	2,948	500
51	Polk	5,900	410	15,194	15,096	10,450
52	Pope	2,000	....	16,417	27,242	....
53	Ramsey	84,983	1,143	247,335	1,298,271	59,095
54	Redwood	2,932	200	3,286	17,329	....
55	Renville	355	2,850	15,600	8,609	....
56	Rice	412	17,835	98,647	632,406	27,627
57	Rock	....	4,063	970	3,800	....
58	St. Louis	5,400	6,120	2,000	4,175	25,250
59	Scott	....	....	53,575	148,104	2,353
60	Sherburne	....	500	7,585	1,974	375
61	Sibley	....	700	1,880	110,846	....
62	Stearns	1,200	4,029	41,523	135,151	2,320
63	Steele	1,500	200	26,858	132,920	....
64	Stevens	100	567	10,369	11,250	250
65	Swift	7,434	650	8,058	18,689	....
66	Todd	1,180	545	9,779	7,781	....
67	Traverse	....	....	2,720	1,550	....
68	Wabasha	5,060	8,420	115,646	70,189	8,701
69	Wadena	10,120	5,442	830	8,732	150
70	Waseca	22,000	....	18,469	46,429	....
71	Washington	3,950	5,000	170,047	147,709	60,467
72	Watonwan	3 000	1,200	17,357	4,130	2,200
73	Wilkin	1,350	600	2,740	555	1,300
74	Winona	6,640	1,627	73,131	409,110	27,750
75	Wright	10,247	100	16,816	72,259	411
76	Yellow Medicine	2,037	8,109	8,938	13,265	....
	Totals	$474,568	$394,145	$2,078,800	$7,219,513	$457,271

"C."—Continued.

	Shares of Bank Stock.	26. Shares of capital stock of companies not of this State.	27. Stock and furniture of saloons and eating houses, including billiard tables, etc.	28. All other property not included in the preceding 27 items.	29. Elevators, warehouses, and other improvements on lands the title to which is vested in any R. R. Company.
1	....	....	$1,375	$3,130	....
2	....	....	825	4,744	4
3	....	....	2,085	4.760	4,619
4	....	....	450	1.009	700
5	....	....	8.205	27.772	10.709
6	110,819	....	6.740	30.905	1.030
7	50,000	250	7,770	9 769	11.731
8	....	....	8,085	30,184	24.975
9	....	20	5,196	1,111	7'350
10	....	....	....	308	25
11	....	....	1,875	1.813	35,148
12	....	5,163	3,229	13 938	2,600
13	....	22	6,825	14,077	23,213
14	....	....	....	....	....
15	....	....	250	5.664	1,255
16	....	....	5,875	8,464	358
17	136.0 0	....	4.525	11.810	6,350
18	45,000	....	1,845	7,093	14,800
19	....	....	2,990	7,785	19,199
20	....	....	1,793	5.665	5,575
21	....	40	4.345	12,783	6,660
22	....	....	4,050	3.900	7.500
23	116,495	10,052	5.950	72.960	8.000
24	....	....	1,677	5,498	13.645
25	2,287,124	2,395	48,310	121.073	10.300
26	....	....	2,145	13,577	3,385
27	....	....	320	212	....
28	....	....	85	1.673	2,770
29	....	....	....	2,237	....
30	31,219	....	3.785	10,197	23,740
31	....	....	1,262	16.495	1,145
32	....	....	....	1,927	519
33	....	....	....	....	....
34	....	....	2,611	8.524	5,365
35	....	....	....	6,544	2.195
36	....	....	1,690	2,140	10,001
37	....	....	2,070	2,085	10,325
38	....	....	745	2,850	13.438
39	....	....	232	5.343	4.024
40	....	20.900	8,825	9,734	18,070
41	....	....	305	690	....
42	....	....	1.295	11,556	1,650
43	25,625	25	2,415	11.250	13.360
44	....	....	....	4.131	2.662
45	50,000	1,300	3.530	8,086	4.351
46	....	....	125	9.157	4.400
47	218,750	....	5.305	16.272	23,000
48	40,000	100	2.802	17.474	20.157
49	....	....	1,126	7.851	1,282
50	....	....	450	4.566	11 006
51	....	....	6,265	28.451	35.421
52	....	....	75	2.723	492
53	2,618,055	55,387	41,235	528.068	8.500
54	....	....	620	4.774	9.343
55	....	110	415	4 555	18,970
56	230,000	123	10,809	87.957	575
57	....	....	700	4,171	985
58	61,513	....	9,750	5.090	45,950
59	63,400	....	7,188	6,898	100
60	....	140	50	4.473	1.870
61	....	....	1,663	2.578	1.638
62	43,463	....	5.305	15.473	6.970
63	76.904	....	5,537	7.194	9.450
64	15,000	....	4,425	10,482	15.095
65	....	625	2,575	10.725	30.391
66	....	....	590	1.913	520
67	....	....	....	4,822	6.978
68	55,850	60	5.721	11.944	6.600
69	....	....	1,265	5.188	2.800
70	5.000	....	2,415	3.132	15.400
71	280.000	....	6.575	39,162	2.000
72	....	....	1,000	1.426	950
73	....	....	2,049	8 566	15.821
74	195.400	....	6,495	15.778	13.750
75	....	....	2 370	8.049	5.300
76	....	....	1.300	5,588	4,574
	$6 775,917	$96,719	$286,884	$1,319,974	$653,082

STATEMENT "C"—Concluded.

	COUNTIES.	30. Improvem'ts on lands held under homestead laws of the United States.	Total value of all personal property included in the 30 items as equaliz'd by the State Board.	Total value of all personal property included in the 30 items as equaliz'd by the County Board.	Total value of all personal property included in the thirty items as returned by the assessors.
1	Aitkin	$ 2,075	$ 36,065	$ 36,065	$ 36,065
2	Anoka	3,401	589,765	572,322	565,158
3	Becker	25,407	359,921	346,886	358,159
4	Benton	450	170,377	124,348	121,346
5	Big Stone	52,636	344,092	365,155	364,148
6	Blue Earth	250	1,804,817	1,671,603	1,548,617
7	Brown	17,401	917,528	856,812	729,703
8	Carlton	3,175	131,678	130,292	130,292
9	Carver	433	884,214	834,551	757,393
10	Cass	1,175	34,416	34,113	34,113
11	Chippewa	33,431	485,448	483,896	415,298
12	Chisago	....	479,049	449,160	445,968
13	Clay	53,836	670,400	673,545	670,673
14	Cook	....	735	610	610
15	Cottonwood	50,765	457,920	449,739	424,272
16	Crow Wing	1,501	172,545	172,396	161,705
17	Dakota	700	1,589,678	1,485,597	1,348,645
18	Dodge	....	1,020,349	881,581	866,810
19	Douglas	5,012	730,122	693,263	675,105
20	Faribault	348	1,071,376	1,044,046	898,605
21	Fillmore	60	2,231,951	2,088,904	2,048,172
22	Freeborn	545	1,143,671	1,057,969	935,819
23	Goodhue	650	2,780,310	2,558,674	2,465,194
24	Grant	23,318	274,813	269,514	250,657
25	Hennepin	200	10,485,682	10,317,305	9,638,650
26	Houston	1,980	1,287,378	1,177,240	1,109,089
27	Isanti	3,459	262,371	254,895	217,259
28	Jackson	11,597	338,126	297,423	284,431
29	Kanabec	10,465	41,618	41,073	42,918
30	Kandiyohi	4,188	975,763	963,073	888,393
31	Kittson	19,770	125,758	125,653	126,200
32	Lac qui Parle	32,316	394,476	381,180	372,579
33	Lake	....	9,909	9,725	9,638
34	Le Sueur	500	960,939	886,832	684,126
35	Lincoln	45,283	254,895	247,374	241,763
36	Lyon	20,285	452,032	400,161	400,612
37	McLeod	866	855,292	758,964	700,333
38	Marshall	18,067	122,107	121,113	121,117
39	Martin	25,151	476,632	435,172	433,256
40	Meeker	1,628	850,223	720,072	702,220
41	Mille Lacs	130	80,241	67,743	67,743
42	Morrison	26,708	348,909	338,140	338,140
43	Mower	4,800	1,270,782	1,142,277	1,087,553
44	Murray	32,061	280,547	276,309	270,565
45	Nicollet	1,750	1,045,680	1,039,909	919,346
46	Nobles	25,918	375,213	327,089	316,904
47	Olmsted	800	2,150,841	2,148,296	1,997,893
48	Otter Tail	80,690	1,341,057	1,259,029	1,268,614
49	Pine	900	77,051	75,757	74,634
50	Pipestone	43,173	243,133	215,709	215,709
51	Polk	177,640	1,205,067	1,290,885	1,237,513
52	Pope	11,405	465,707	451,168	423,656
53	Ramsey	....	9,489,346	9,225,537	9,297,832
54	Redwood	15,487	441,621	426,843	367,434
55	Renville	41,077	737,751	652,868	624,462
56	Rice	....	2,471,805	2,385,027	2,284,373
57	Rock	17,863	302,866	237,162	246,429
58	St. Louis	....	354,897	347,092	317,205
59	Scott	400	1,015,271	951,286	757,782
60	Sherburne	4,528	310,166	279,458	274,685
61	Sibley	1,525	847,368	725,389	592,475
62	Stearns	2,316	1,580,026	1,420,140	1,318,410
63	Steele	....	1,089,884	1,014,383	984,103
64	Stevens	56,073	475,721	462,086	456,915
65	Swift	65,754	633,962	632,694	607,225
66	Todd	6,377	334,514	249,073	249,673
67	Traverse	36,110	193,047	192,497	190,060
68	Wabasha	1,175	1,270,677	1,118,063	1,108,312
69	Wadena	15,963	198,600	201,259	201,258
70	Waseca	210	864,804	778,729	721,724
71	Washington	....	1,951,779	1,925,787	1,922,319
72	Watonwan	11,835	381,703	359,245	321,619
73	Wilkin	34,474	278,725	284,075	283,816
74	Winona	1,190	2,414,244	2,333,826	1,983,076
75	Wright	182	1,011,516	830,164	818,977
76	Yell'w Medicine	31,865	551,030	403,910	397,300
	Totals	$ 1,222,858	$74,329,190	$70,496,081	$66,825,315

STATEMENT "D"—Abstract of Personal Property in the several Counties of Minnesota, as Equalized by the State Board, 1882.

	COUNTIES.	No. of Persons Assessed Exclusive of Firms.	1. HORSES.					
			One Year Old.			Two Years Old.		
			No.	Value.	Average Value.	No.	Value.	Average Value.
1	Aitkin	47	......	......	......	......	......	......
2	Anoka	1,208	156	$ 3,324	$21 31	234	$ 8,129	$35 74
3	Becker	955	164	3,510	21 39	120	4,178	34 81
4	Benton	681	72	1,463	20 31	86	3,092	36 13
5	Big Stone	1,014	95	1,906	20 06	80	2,761	34 51
6	Blue Earth	8,763	1,094	23,553	21 53	1,023	37,102	36 27
7	Brown	2,223	634	12,992	20 47	588	21,081	35 83
8	Carlton	97	......	......	......	1	50	50 00
9	Carver	2,207	411	8,749	20 29	406	14,578	35 90
10	Cass	49	......	......	......	......	......	......
11	Chippewa	1,212	230	4,630	20 13	246	8,684	35 30
12	Chisago	1,436	114	2,429	23 80	110	3,877	35 24
13	Clay	1,333	141	2,934	20 34	155	5, 58	35 86
14	Cottonwood	1,064	257	5,211	20 27	236	8 263	35 01
15	Crow Wing	423	6	121	19 56	17	585	34 41
16	Dakota	2,608	766	15,485	20 21	730	26,061	35 70
17	Dodge	1,958	709	14,417	20 33	614	21,625	35 22
18	Douglas	2,013	386	8,162	21 15	362	12 489	34 50
19	Faribault	2,649	832	16,712	20 08	830	29,365	35 37
20	Fillmore	4,011	1,459	31,207	23 97	1,442	51,386	35 63
21	Freeborn	2,694	840	17,635	20 99	828	28,818	34 80
22	Goodhue	3,944	1,243	24,712	19 88	1,104	38,686	35 04
23	Grant	730	174	3,482	20 41	......	4,490	33 02
24	Hennepin	7,735	534	10,413	19 50	520	23,123	44 47
25	Houston	2,197	689	14,517	21 06	634	22,434	35 38
26	Isanti	1,182	78	1,735	22 24	79	2,785	35 25
27	Itasca	10	......	......	......	......	......	......
28	Jackson	1,066	248	5,212	21 00	215	7,665	35 64
29	Kanabec	93	3	55	18 33	1	60	60 00
30	Kandiyohi	2,055	646	13,383	20 72	557	19,490	35 00
31	Kittson	402	17	355	20 88	57	2 151	37 74
32	Lac qui Parle	1,166	223	4,460	20 00	202	7,070	35 00
33	Lake	10	......	......	......	......	......	......
34	Le Sueur	2,644	508	10,874	21 42	478	16,816	35 38
35	Lincoln	769	100	2,118	21 18	74	2 690	36 35
36	Lyon	1,173	268	5,393	20 11	213	7,478	35 10
37	McLeod	2,259	652	13,052	20 01	572	19,972	34 91
38	Marshall	390	11	251	22 82	14	490	34 97
39	Martin	1,349	368	7,597	20 64	300	10,899	36 33
40	Meeker	2,036	530	11,962	22 57	462	16,822	36 33
41	Mille Lacs	218	20	441	22 05	19	682	41 39
42	Morrison	1,281	150	2,992	19 94	116	4,187	36 40
43	Mower	2,967	848	16,960	20 00	753	26,505	35 20
44	Murray	1,021	151	3,056	20 17	154	5,431	35 26
45	Nicollet	2,184	1,093	23,649	21 64	1,040	37,007	35 78
46	Nobles	1,087	206	4,166	20 22	186	6 511	35 01
47	Norman	1,135	132	2,717	20 58	115	4,201	36 00
48	Olmstead	2,934	1,131	23,149	20 41	1,010	36,404	36 04
49	Otter Tail	4,038	717	14,340	20 00	644	23,184	36 00
50	Pine	273	5	130	26 00	3	140	46 67
51	Pipe Stone	869	52	1,221	21 53	57	2,052	36 00
52	Polk	2,417	182	3,806	20 91	171	5,883	34 43
53	Pope	1,429	397	7,973	20 13	324	11,064	34 07
54	Ramsey	3,959	101	2,362	23 38	105	4,308	41 02
55	Redwood	1,207	227	4,524	19 93	213	7,610	32 62
56	Renville	2,170	667	13,416	20 16	885	31,860	36 00
57	Rice	3,161	914	18,426	20 16	815	29,310	36 00
58	Rock	782	190	4,018	21 15	182	6,508	35 42
59	St Louis	340	3	60	20 16	9	347	38 50
60	Scott	2,172	513	11,670	22 74	388	14,497	37 36
61	Sherburne	964	155	3,024	19 50	166	5,835	35 14
62	Sibley	1,946	721	14,420	20 00	689	24,121	35 00
63	Stearns	3,894	1,070	21,853	20 42	1,009	35,609	35 28
64	Steele	1,949	726	14,538	20 25	688	22,943	36 48
65	Stevens	802	125	2,562	20 15	90	3,257	36 18
66	Swift	1,386	285	5,657	19 85	224	8,009	35 75
67	Todd	1,356	161	3,388	21 04	176	6,221	35 34
68	Traverse	625	29	586	20 22	27	955	35 40
69	Wabasha	2,173	519	10,515	16 23	463	16,412	35 42
70	Wadena	593	35	728	21 00	25	922	36 00
71	Waseca	2,051	802	16,518	20 59	700	24,678	35 25
72	Washington	1,984	297	7,472	25 16	219	8,811	40 24
73	Watonwan	1,016	303	6,452	21 29	256	8,991	35 12
74	Wilkin	539	65	1,426	22 42	53	1,804	34 03
75	Winona	2,564	729	15,090	20 69	714	25,680	36 00
76	Wright	3,346	504	10,359	20 56	492	17,488	35 54
77	Yellow Medicine	1,266	241	5,032	20 88	250	9,045	36 18
	Total	128,673	29,210	$602,727	$20 64	27 020	$969,3[illegible]	$35 87

STATEMENT

	COUNTIES.	1. HORSES.			2. CATTLE.		
		Three years old and over.			One year old.		
		No.	Value.	Average Value.	No.	Value.	Average Value.
1	Aitkin	20	$ 1,615	$80 70	17	$ 80	$4 70
2	Anoka	1,596	103.871	65 07	1,286	7,974	6 22
3	Becker	1,237	81.379	65 80	1,310	8,242	6 14
4	Benton	739	47.740	64 59	785	4,796	6 50
5	Big Stone	1,438	96.151	66 85	612	3,626	5 92
6	Blue Earth	6,984	460 263	65 90	4.802	33,289	6 93
7	Brown	3,332	219.968	66 02	3,381	20,388	6 03
8	Carlton	176	13.070	74 26	24	240	10 00
9	Carver	3,424	239.542	69 96	3,022	18,256	6 04
10	Cass	123	8,766	71 24	30	180	6 29
11	Chippewa	2,099	137.445	65 48	1,386	9,539	6 88
12	Chisago	1,474	97.536	66 17	1,565	9,531	6 07
13	Clay	2,476	157,153	63 47	1.097	6,636	6 04
14	Cottonwood	1,862	128,752	69 06	1,855	12,787	6 89
15	Crow Wing	285	19.827	69 57	74	489	6 61
16	Dakota	6,177	409 151	66 23	2,619	18,298	6 99
17	Dodge	4,208	276,647	65 74	3 503	21 276	6 07
18	Douglas	2,675	184,300	68 90	2.684	15,854	5 90
19	Faribault	5,031	318.465	63 29	4.593	30,050	6 54
20	Fillmore	8.011	539,579	67 10	6,607	41,011	6 20
21	Freeborn	5.781	389,987	67 45	5,498	33.199	6 04
22	Goodhue	9.490	640.429	67 48	5,317	32,124	6 03
23	Grant	1.503	92.486	61 53	1,011	6.087	6 00
24	Hennepin	10.108	768.616	76 04	2,080	18.930	9 10
25	Houston	4,361	281.689	64 58	3,977	24 669	6 19
26	Isanti	1,164	74,196	63 73	1,112	6,876	6 13
27	Itasca	14	893	63 75	......	......	......
28	Jackson	1,518	98,027	64 55	2,149	13,361	6 21
29	Kanabec	97	6.710	69 18	56	327	5 85
30	Kandiyohi	3,918	255 061	65 10	3,873	23.237	6 00
31	Kittson	455	30.878	67 86	216	1.352	6 26
32	Lac qui Parle	2,355	155,430	66 00	1,539	9,234	5 25
33	Lake	6	360	60 00	13	78	6 00
34	Le Sueur	4,290	280.266	65 33	2,246	13,912	6 20
35	Lincoln	1,030	66 579	64 63	776	4.816	6 33
36	Lyon	2,147	136.846	63 72	1.336	7,762	5 80
37	McLeod	3,648	240.197	65 83	3,327	20,034	6 02
38	Marshall	668	43 296	64 80	174	1,052	6 04
39	Martin	200	126.318	63 13	2 006	12.474	6 22
40	Meeker	3.733	243 704	65 28	2,990	18.445	6 16
41	Mille Lacs	307	19.706	64 21	280	1.669	6 30
42	Morrison	1,475	98,569	66 88	1,048	6.370	6 07
43	Mower	6,028	397 848	66 00	4,311	27.160	6 30
44	Murray	1,318	83,657	63 45	1,016	6.406	6 30
45	Nicollet	3,954	261.445	66 04	3.811	23,115	6 06
46	Nobles	1.656	104.360	63 02	1.216	7 361	6 05
47	Norman	2.056	138,970	67 50	1.202	8,368	6 96
48	Olmsted	7.213	477,905	66 25	5.458	33.102	6 06
49	Otter Tail	6,012	399,678	66 15	4,527	27,162	6 00
50	Pine	162	11.664	72 00	38	200	6 45
51	Pipestone	1.132	74.424	65 73	411	2,463	6 00
52	Polk	4.982	381.378	76 56	1,357	7,884	5 80
53	Pope	2.628	174,158	66 45	2.613	15,953	6 03
54	Ramsey	3.546	295.413	83 31	410	3.621	8 83
55	Redwood	2.038	135.446	66 45	1,555	9,785	6 30
56	Renville	3,638	240.108	66 00	3,370	20.220	6 00
57	Rice	5.883	392.820	66 76	3.374	20,244	6 00
58	Rock	1,667	110.920	66 52	1,139	7,028	6 15
59	St. Louis	314	22.055	70 24	52	329	6 32
60	Scott	3.447	226,381	65 66	2,110	12.918	6 12
61	Sherburne	1.493	97.032	64 98	1.337	7.906	5 91
62	Sibley	3,742	243.813	65 15	3,262	19,763	6 05
63	Stearns	6,129	411,774	67 18	5.487	33,774	6 15
64	Steele	4.689	311.505	66 43	3.352	20,322	6 06
65	Stevens	1.709	113.328	66 31	574	3.338	5 81
66	Swift	2.381	156.797	65 89	1.657	10.107	6 09
67	Todd	1,490	92.569	62 15	1.307	7,975	6 09
68	Traverse	996	66.955	67 21	222	1,366	6 14
69	Wabasha	4,605	304.690	66 15	2,497	15.190	6 08
70	Wadena	627	42.065	67 00	239	1.482	6 00
71	Waseca	4,113	273.362	66 46	2.714	16,645	6 13
72	Washington	3.813	278.025	72 91	1.462	8.817	6 03
73	Watonwan	1,759	113.554	64 54	2,158	13.117	6 08
74	Wilkin	1,294	87.708	67 78	323	2.079	6 43
75	Winona	5,684	371.000	65 27	3.822	23.175	6 06
76	Wright	4,274	280.595	65 64	3 705	22.470	6 07
77	Yellow Medicine	2.293	145.044	63 26	1.989	11.908	5 97
	Totals	220.460	$14.909 969	$67 63	156.441	$971.293	$6 21

"D"— Continued.

	2. CATTLE.								
	Two years old.			Cows.			All other cattle 3 years old and over.		
	No.	Value.	Av'age Value.	No.	Value.	Average Value.	No.	Value.	Average Value.
1	15	$ 255	$17 00	59	$ 1,285	$21 78	155	$ 7,035	$45 38
2	1,053	12,313	11 69	2,633	48,231	18 31	494	10,588	21 43
3	901	9,666	10 72	2,071	37,398	18 06	879	26 756	30 43
4	688	8,291	12 04	1,297	23,100	17 82	634	12 906	20 34
5	436	4,831	11 08	1,061	19,221	18 11	556	16,425	29 54
6	3,724	44,491	11 95	8,906	166,386	18 67	994	19,417	19 52
7	2,245	26,242	11 69	5,828	112,785	19 35	310	7,186	23 18
8	19	294	15 26	58	1,155	19 91	291	9,691	33 30
9	2,501	29,318	11 71	5,572	111,417	19 99	842	21,064	25 01
10	28	336	12 00	54	972	18 00	89	8,280	36 85
11	983	11.107	11 30	2,276	41,254	18 12	606	15,020	24 79
12	1,244	13,582	10 91	3,018	54.491	18 03	998	24,638	24 68
13	765	9,153	11 96	2,325	42,069	18 08	813	19,849	24 42
14	1,192	14,548	12 21	2,965	54,987	18 54	464	12,330	24 64
15	73	884	12 11	282	5,397	19 07	114	4,290	37 63
16	2,033	24,537	12 06	5,724	109,503	19 12	521	13,207	25 35
17	2,293	27,436	11 94	5,197	93,530	16 36	227	4,620	20 35
18	2,010	22,624	11 25	3,953	68,736	17 39	1,434	401,114	27 97
19	3,731	41,358	11 08	7,568	133,386	18 59	942	18,934	20 09
20	4,504	49,451	10 98	10,626	195,369	18 40	424	8,585	20 24
21	3,608	43,070	11 90	8,090	144,107	17 69	530	11,674	22 03
22	3,356	40,365	12 03	8,904	159.973	17 96	418	8,452	20 22
23	728	8,550	11 74	1,492	27.785	18 61	443	12,188	27 50
24	1,893	25,437	13 44	8,892	181,496	20 41	925	23,528	25 44
25	3,155	36,611	11 59	6,253	114,447	18 30	719	14,477	20 10
26	955	10,567	11 06	2,141	39,611	18 51	980	22,725	23 19
27	....	....	....	7	260	37 14	142	5,489	38 65
28	1,533	18,544	12 09	3,156	57,804	18 28	531	10,653	20 06
29	24	284	11 85	151	2,838	18 79	210	6,455	30 74
30	3,151	34,661	11 00	5,487	98,776	18 00	1,175	28,933	24 62
31	114	1,403	12 30	450	8,299	18 45	239	6,555	27 42
32	1,096	13,140	12 00	2,567	46,206	18 00	846	20.741	24 53
33	5	59	11 96	18	323	17 94	19	399	21 00
34	1,745	21,195	12 14	4,881	88,942	18 19	527	11,081	20 98
35	450	5,312	11 80	1,227	28,703	17 91	523	11,634	22 24
36	970	11,113	10 96	2,387	42,390	17 74	713	9,296	22 50
37	2,878	34.474	11 97	6,051	110.007	18 18	1,175	24,673	21 00
38	97	1.171	12 06	382	6,840	17 91	350	9.947	28 42
39	1,680	20,052	11 94	3,556	61,417	17 27	855	17,872	20 90
40	2,422	26,503	10 94	4,816	88,215	18 31	1,211	26.776	22 10
41	208	2,484	11 77	494	8,600	17 40	266	5,495	20 65
42	814	9,206	11 30	1,952	35,599	18 20	919	24,330	26 47
43	2,788	33.456	12 00	6,962	125,316	18 00	543	11,728	21 60
44	597	7,171	12 01	1,780	32,200	18 08	451	10,911	24 19
45	3,125	38,100	12 19	6,042	109,089	18 05	593	12.267	20 68
46	795	9.544	12 00	1,962	35,270	17 97	360	9.001	25 00
47	597	6,683	11 00	2,061	36.487	17 60	909	24,928	27 42
48	3,923	48,028	12 24	7,841	141,495	18 04	481	10,333	21 48
49	3,034	32,767	10 80	7,477	131,595	17 60	2,941	73,525	25 00
50	34	452	13 29	168	3,164	18 83	214	6,783	33 70
51	265	3,219	12 00	751	14,967	19 92	237	9 389	39 61
52	932	9,897	10 62	3.027	54,862	18 21	1 699	51,184	30 13
53	2,156	23,688	11 01	3,413	59,458	17 40	1,335	25,752	24 80
54	416	5,452	13 10	2,718	53,649	19 73	108	2,796	26 37
55	1,254	15,010	11 96	2,676	47,954	17 91	677	15,236	22 50
56	2,401	28,812	12 00	5,348	96,264	18 00	800	20,000	25 00
57	2,521	30,252	12 00	6,071	111,049	18 28	589	11,737	19 92
58	805	9.812	12 18	1,801	32,232	17 88	185	4.066	21 97
59	40	494	12 35	254	4,788	18 85	44	1.230	28 00
60	1,703	20.411	11 97	4,740	86,635	18 28	474	9.506	20 05
61	1.226	14.456	11 79	2,271	39,259	17 28	880	18,189	20 67
62	2.552	31,105	11 71	5,537	99,667	17 98	851	17,020	20 00
63	4,705	56.640	12 04	9.253	166,579	18 00	2,346	47,959	20 44
64	2,294	27.819	12 13	5.516	100,122	18 14	415	9,188	20 65
65	406	4,972	11 26	1,112	20,330	17 52	256	7,487	29 24
66	1,186	14.084	11 92	2 517	44,951	17 86	763	20.261	26 55
67	1,208	14,396	11 92	2,344	40,061	17 12	1,067	25 543	23 94
68	138	1,632	11 82	529	9,452	17 86	335	11,803	35 28
69	1,655	19.940	12 04	4,211	75,927	18 02	163	3,364	20 64
70	157	1,750	11 15	568	10,091	17 77	181	6,535	36 00
71	1,952	23,907	12 24	5,087	92,474	18 13	449	9,587	21 35
72	1.118	13.198	11 49	4.298	84.193	19 59	417	11,387	27 30
73	1,359	16,392	12 06	3,551	63,523	17 89	405	8,826	21 79
74	202	2,396	11 86	656	11,409	17 39	210	7,416	35 27
75	2,817	33.067	11 73	5,861	112,801	19 24	475	9,979	21 01
76	3,054	35,820	11 72	6.591	116.608	17 68	1,769	40,166	22 70
77	1,372	16.011	11 67	2.860	50,962	18 80	583	12 989	22 27
	116,136	$1,365,783	$11 76	272,681	$4,988,227	$18 29	49,536	$1,187,379	$23 96

STATEMENT

	COUNTIES.	10. PIANO FORTES. No.	10. PIANO FORTES. Value.	10. PIANO FORTES. Average value.	11. Household and Office Furniture.	12. Agricultural Tools, Implements and Machinery.
1	Aitkin	2	$ 375	$187 50	$ 875	....
2	Anoka	26	2.561	83 35	32.619	$20.700
3	Becker	13	1,295	99 61	18.730	45,496
4	Benton	13	1.271	97 79	9,839	8.715
5	Big Stone	9	884	98 22	13.839	52,939
6	Blue Earth	112	11.638	103 91	110,971	133.333
7	Brown	27	4,250	157 00	42,497	62,099
8	Carlton	2	210	105 00	2,835	157
9	Carver	18	1,785	99 16	50,627	76.417
10	Cass	.... ..	....	....	1,941	473
11	Chippewa	3	293	97 50	19.323	71,033
12	Chisago	34	3,380	99 41	37.527	26,310
13	Clay	31	4,175	137 86	42,422	91,596
14	Cook	....	......	... .	... .	....
15	Cottonwood	6	588	98 00	13.808	54,741
16	Crow Wing	30	4.280	142 66	28.660	3.101
17	Dakota	118	12.080	102 38	93.535	126.321
18	Dodge	36	3,723	103 43	49,327	110.655
17	Douglas	11	1.450	131 80	33.481	51 353
20	Faribault	23	2,298	99 91	53,010	90,120
21	Fillmore	68	6,809	100 13	100,542	236.367
22	Freeborn	29	2,888	99 59	46,291	109.138
33	Goodhue	131	13,390	102 21	165,116	234,920
24	Grant	3	305	101 50	8.631	32.695
25	Hennepin	1,070	131,335	122 74	955,043	132,663
26	Houston	31	3,194	103 01	50.160	118,010
27	Isanti	3	300	100 00	14.401	28.045
28	Jackson	5	519	103 75	13.488	30.273
29	Kanabec	....	... .	....	2.312	1.595
30	Kandiyohi	21	2,360	112 38	32,359	87,845
31	Kittson	4	650	162 50	9.161	7.414
32	Lac qui Parle	1	150	150 00	13.485	63,164
33	Lake	. .....	....	. .....	275	112
34	Le Sueur	35	3,880	110 85	56.220	76,880
35	Lincoln	1	98	98 00	10,207	29,618
36	Lyon	9	899	99 88	17,351	31.260
37	McLeod	24	2,465	102 70	41.405	62,299
38	Marshall	....	....	....	2,373	9.615
39	Martin	14	1,392	99 42	20,158	39,622
40	Meeker	36	3,985	110 69	40.553	68.971
41	Mille Lacs	5	500	100 00	4,424	2,411
42	Morrison	5	499	99 75	17,017	33,625
43	Mower	53	5,316	100 50	81,572	153.986
44	Murray	4	406	101 56	10.938	36,770
45	Nicollet	30	3.085	100 25	61,241	108.161
46	Nobles	25	2,513	100 52	18,772	29.836
47	Olmsted	91	9,667	106 23	126.627	203.210
48	Otter Tail	35	4.108	117 37	47.174	130,540
49	Pine	5	600	120 00	8.658	1.209
50	Pipestone	....	....	....	8,713	26.267
51	Polk	26	2,630	101 00	46,797	146,542
52	Pope	1	25	25 00	13.310	41.900
53	Ramsey	702	84,623	120 54	740,144	22,575
54	Redwood	14	1,400	100 00	19,312	51,543
55	Renville	8	800	100 00	22,776	78,303
56	Rice	172	23,200	135 22	162,036	141,852
57	Rock	13	1,336	102 77	11,031	35,048
58	St. Louis	62	6.575	106 00	31,571	301
59	Scott	30	3.070	102 33	59,487	86,002
60	Sherburne	20	1.985	99 25	14,742	28,652
61	Sibley	21	2.135	101 67	38,461	77,792
62	Stearns	94	9.350	99 47	96,989	133.270
63	Steele	74	7,351	99 34	55,791	97,503
64	Stevens	13	1,325	101 92	15.310	65.722
65	Swift	10	1,000	100 00	22,931	88,320
66	Todd	3	306	102 00	14,448	34.012
67	Traverse	3	306	102 08	7,022	22.236
68	Wabasha	117	12,031	102 84	86 823	126 947
69	Wadena	8	861	107 50	13 970	21.805
70	Waseca	23	2.405	104 56	58,149	84,132
71	Washington	129	16,710	129 53	114.943	99,284
72	Watonwan	16	1,604	100 25	14.723	31,860
73	Wilkin	5	488	97 00	10.652	41,261
74	Winona	145	14,982	103 32	164,078	149,059
75	Wright	20	2,009	100 45	49.726	88,183
76	Yellow Medicine		202	101 25	13.307	41,200
	Totals	3.983	$456,618	$114 64	$4,536,612	$4,987,383

"C"—Continued.

	13. Gold & Silver Plate & Plated Ware.	14. Diamonds & Jewelry.	15. Franchises, Annuities, Royalties, etc.	16. Steamboats, Sailing Vessels, Barges, etc	17. Goods and Merchandise.	18. Material and Manufactured Articles.	19. Manufacturers' Tools, Implements and Machinery, including Engines and Boilers.
1	$	$	$	$ 2,000	$ 6,500	$	$ 310
2	363	60	....	....	68,657	153,077	3,510
3	240	215	....	10	41,948	4,560	6,573
4	79	30	....	....	24,780	570	614
5	346	252	....	2,005	36,629	2,155	916
6	804	415	....	75	214,273	18,860	19,635
7	145	65	....	....	106,660	12,890	24,935
8	10	15	....	....	13,420	12,300	17,715
9	65	30	210	980	116,011	4,169	10,045
10	10	....	....	1,550	2,932	11,450	3,915
11	155	....	....	....	44,785	977	1,842
12	522	45	....	....	67,646	9,469	3,927
13	1,007	580	150	2,000	73,491	13,025	11,705
14	....	....	....	....	625	....	....
15	55	10	....	....	35,460	300	2,145
16	636	732	....	175	55,520	5,172	10,810
17	1,315	200	....	5,300	151,401	29,390	12,629
18	890	70	25	25	93,270	5,020	2,607
19	194	118	....	15	101,260	7,020	10,620
20	281	25	....	25	108,730	10,890	3,930
21	520	155	....	....	239,766	31,375	8,365
22	157	10	....	130	111,389	10,400	1,545
23	2,103	1,020	300	190	290,616	74,191	13,384
24	13	3	50	....	17,514	765	270
25	14,963	22,995	7,190	15,396	2,015,486	1,520,419	218,503
26	208	25	....	2,610	106,228	5,800	3,755
27	12	....	....	100	15,900	1,273	6,075
28	....	....	....	....	25,412	3,405	755
29	34	10	....	445	2,900	50	30
30	....	....	....	....	100,062	1,685	2,790
31	315	....	....	....	19,110	25	160
32	180	35	....	....	6,760	195	900
33	....	1	....	200	540	5,30	1,000
34	....	....	....	110	100,452	7,853	15,890
35	229	40	50	250	21,895	840	955
36	146	50	....	....	63,881	370	3,011
37	138	90	....	....	89,941	5,191	8,335
38	153	10	....	....	21,843	70	50
39	20	21	....	....	29,178	2,710	1,720
40	264	10	15	....	100,463	8,100	7,835
41	585	10	5	....	12,531	120	505
42	....	....	....	300	36,856	4,175	9,310
43	17	17	....	....	142,869	3,290	3,187
44	632	30	....	....	19,618	200	1,818
45	5	100	....	....	86,810	9,040	5,215
46	510	80	96	75	31,744	2,410	3,935
47	206	85	....	....	240,230	27,560	9,668
48	170	....	....	10	130,946	53,445	19,306
49	443	48	....	2,300	7,825	3,120	4,230
50	235	30	....	....	28,701	4,020	934
51	22	25	....	525	85,672	5,718	8,611
52	354	105	50	....	18,016	80	2,165
53	40	5	....	4,850	2,748,745	147,518	214,225
54	29,996	26,881	....	....	36,541	70	1,705
55	76	1	....	....	58,102	674	1,105
56	16	....	....	....	249,266	35,050	25,928
57	5,060	571	300	....	25,710	85	715
58	40	....	300	18,535	83,847	2,650	13,125
59	581	350	....	150	98,739	17,389	9,858
60	75	66	....	....	23,362	6,980	5,397
61	206	75	325	....	74,049	720	5,615
62	5	75	....	100	168,72	19,840	26,831
63	820	215	....	....	100,642	7,930	8,802
64	222	50	....	....	71,628	575	4,407
65	622	400	....	....	60,545	4,338	1,563
66	128	70	....	320	21,45	3,213	6,789
67	25	....	....	....	17,964	25	310
68	130	300	....	5,450	172,232	22,266	9,743
69	983	938	50	....	38,741	1,175	8,295
70	117	45	....	80	99,580	3,670	2,928
71	75	....	....	35,690	196,636	191,380	42,960
72	1,879	3,100	17,000	....	31,283	1,180	1,148
73	55	....	....	....	38,28	2,715	1,445
74	88	20	....	2,734	362,930	197,266	11,820
75	630	410	1,570	320	120,108	3,556	17,715
76	342	190	85	....	47,239	632	1,670
	$71,982	$61,668	$27,751	$105,630	$10,540,456	$2,765,416	$935,983

STATEMENT

	COUNTIES.	20. Moneys of banks, bankers, brokers, or stock jobbers.	21. Credits of banks, bankers, brokers, or stock jobbers.	22. Moneys other than bankers, etc.	23. Credits other than bankers, etc.	24. Bonds and stock.
1	Aitkin	....	....	....	....	....
2	Anoka	$ 375	$16.358	$12,786	$41,046	$1,255
3	Becker	11,963	1,270	5,059	7.205	....
4	Benton	1.050	450	1,334	5,356	340
5	Big Stone	8.652	1,100	5,582	6.712	....
6	Blue Earth	3,700	2,615	35,669	191.750	2,000
7	Brown	7,550	38,308	16,954	41,842	1,134
8	Carlton	....	....	....	1,000	....
9	Carver	4,680	1,900	22,158	81.767	1,250
10	Cass	100	330	....	....	....
11	Chippewa	7,022	2.219	10.819	10.559	720
12	Chisago	375	4,034	9,914	47,548	200
13	Clay	141	58,203	10,780	3,171	600
14	Cook	....	....	....	....	....
15	Cottonwood	....	1,150	5,725	3,819	....
16	Crow Wing	1.300	316	1,828	10,600	....
17	Dakota	9,405	8,120	48,134	181.615	10,347
18	Dodge	....	....	35.124	78.770	2.500
19	Douglas	625	14,940	37.887	51,288	2.135
20	Faribault	3,659	6.160	19,788	31.917	2,450
21	Fillmore	852	39.841	73.713	387.522	932
22	Freeborn	....	17,495	46.766	26.357	620
23	Goodhue	30,479	3,554	156,644	453.796	2,450
24	Grant	3.000	600	5,089	2.214	....
25	Hennepin	93,346	56,524	311,259	937.438	174 636
26	Houston	1,065	300	16,509	326,174	9,330
27	Isanti	....	....	1,110	10,118	....
28	Jackson	....	1,000	7,858	10,009	....
29	Kanabec	200	....	....	....	....
30	Kandiyohi	27,631	8.863	18,078	89,036	....
31	Kittson	....	2,000	....	825	....
32	Lac qui Parle	150	650	14,107	6,320	....
33	Lake	....	....	943	....	....
34	Le Sueur	4.900	200	18,546	108,206	2,173
35	Lincoln	2,280	250	1.625	1,412	....
36	Lyon	16.161	1,160	4,515	11,100	300
37	McLeod	15.000	....	20.581	61,520	220
38	Marshall	3.000	....	1,000	....	....
39	Martin	500	....	2 219	14.266	300
40	Meeker	11.120	650	17,755	60,485	240
41	Mille Lacs	4,775	....	....	4,594	....
42	Morrison	5,400	725	1,000	15,076	....
43	Mower	....	2,050	19.070	94,604	500
44	Murray	91	....	2.035	1,145	....
45	Nicollet	....	2,600	5.825	112.367	5,300
46	Nobles	11.906	1.275	4.635	5,312	3,100
47	Olmsted	1,508	25,685	23.835	291,255	2,040
48	Otter Tail	2,200	520	25,612	41,143	1,000
49	Pine	....	320	2,259	675	....
50	Pipestone	607	100	895	2,948	500
51	Polk	5.900	410	15,194	15,096	10,450
52	Pope	2,000	....	16.417	27,242	....
53	Ramsey	84.983	1,143	247,335	1,298,271	59,095
54	Redwood	2,932	200	3.286	17.329	....
55	Renville	355	2,850	15,600	8,669	....
56	Rice	412	17,835	98,647	632,406	27,627
57	Rock	....	4,063	970	3,800	....
58	St. Louis	5,400	6,120	2,000	4,175	25.250
59	Scott	....	....	53,575	148,104	2,353
60	Sherburne	....	500	7,585	1,974	375
61	Sibley	....	700	1,880	110.846	....
62	Stearns	1,200	4,029	41.523	135,151	2.320
63	Steele	1.500	200	26,858	132,920	....
64	Stevens	100	567	10,369	11,250	250
65	Swift	7,434	650	8,058	18.689	....
66	Todd	1,180	545	9,779	7,781	....
67	Traverse	....	....	2,720	1.550	....
68	Wabasha	5,060	8,420	115,646	70.189	8,701
69	Wadena	10,120	5,442	830	8.732	150
70	Waseca	22,000	....	18,469	46.429	....
71	Washington	3.950	5,000	170.047	147,709	60,467
72	Watonwan	3 000	1,200	17.357	4,130	2.200
73	Wilkin	1.350	600	2.746	555	1,300
74	Winona	6.610	1,627	73,131	409.110	27,750
75	Wright	10,247	100	16,816	72,259	411
76	Yellow Medicine	2.037	8,109	8,938	13,285	....
	Totals	$474,568	$394,145	$2,078,800	$7,219,513	$457,271

"O."—Continued.

	Shares of Bank Stock.	26. Shares of capital stock of companies not of this State.	27. Stock and furniture of saloons and eating houses, including billiard tables, etc.	28. All other property not included in the preceding 27 items.	29. Elevators, warehouses, and other improvements on lands the title to which is vested in any R. R. Company.
1	.....	.....	$1,375	$3,130	.....
2	.....	.....	825	4,744	4
3	.....	.....	2,085	4.760	4,619
4	.....	.....	450	1.009	700
5	.....	.....	3.205	27,772	10.709
6	110,819	.....	6.740	30.905	1.030
7	50,000	250	7,770	9 769	11.731
8	.....	.....	3,085	30,184	24.975
9	.....	20	5,196	1,111	7'350
10	.....	.....	.....	303	25
11	.....	.....	1,875	1.813	35,148
12	.....	5,163	3,229	13 938	2,600
13	.....	22	6,825	14,077	23,213
14	.....	.....	.....	.....	.....
15	.....	.....	250	5.664	1,255
16	.....	.....	5,875	3,464	358
17	136.0 0	.....	4.525	11.810	6,350
18	45,000	.....	1,845	7,093	14,800
19	.....	.....	2,999	7,785	19,199
20	.....	.....	1,793	5.665	5,573
21	.....	40	4.345	12,783	6,660
22	.....	.....	4,050	3,900	7.500
23	116,495	10,032	5.950	72.960	8.000
24	.....	.....	1,677	5,498	13.645
25	2,287,124	2,395	48,310	121,073	10,300
26	.....	.....	2,145	13,577	3,385
27	.....	.....	320	212	.....
28	.....	.....	85	1.672	2,770
29	.....	.....	.....	2,237	.....
30	31,219	.....	3.785	10,197	28,740
31	.....	.....	1,262	16.495	1,145
32	.....	.....	.....	1,927	519
33	.....	.....	.....	.....	.....
34	.....	.....	2,611	8.524	5,365
35	.....	.....	.....	6,544	2.195
36	.....	.....	1,690	2,140	10,001
37	.....	.....	2,070	2.085	10,325
38	.....	.....	745	2.850	13.436
39	.....	.....	232	5.443	4.024
40	.....	20.900	8,825	9,734	18,070
41	.....	.....	305	690	.....
42	.....	.....	1.295	11,556	1,650
43	25,625	25	2,415	11.250	13.360
44	.....	.....	.....	4.131	2.662
45	50,000	1,300	3,530	8,086	4.351
46	.....	.....	125	9.157	4.400
47	218,750	.....	5.305	16.272	23,000
48	40,000	100	2.802	17.474	20.157
49	.....	.....	1,126	7.851	1,282
50	.....	.....	450	4.866	11 006
51	.....	.....	6,265	28.451	35.421
52	.....	.....	75	2.723	492
53	2,618,055	55,387	41,235	528.068	8.500
54	.....	.....	620	4.774	9.383
55	.....	110	415	4 555	18,970
56	230,000	128	10,899	87.957	575
57	.....	.....	700	4,171	985
58	61,513	.....	9.750	5.090	45,950
59	63,400	.....	7,188	6,808	100
60	.....	140	50	4.473	1.870
61	.....	.....	1,663	2.578	1.638
62	43,463	.....	5.305	15.473	6.970
63	76,904	.....	5,537	7,194	9.450
64	15,000	.....	4,425	10.482	15.095
65	.....	625	2,575	10.725	30,391
66	.....	.....	590	1.913	520
67	.....	.....	.....	4,822	6,978
68	55,850	60	5,721	11.944	6.600
69	.....	.....	1,265	5.188	2.800
70	5.000	.....	2,415	3,132	15.400
71	280.000	.....	6.575	39,162	2.009
72	.....	.....	1,000	1.426	950
73	.....	.....	2,049	8 566	15.821
74	195.400	.....	6,495	15.778	13.750
75	.....	.....	2 370	8.049	5.300
76	.....	.....	1.300	5,588	4,574
	$6 775,917	$96,719	$286,884	$1,310,974	$653,082

STATEMENT "C"—Concluded.

	COUNTIES.	30. Improvem'ts on lands held under homestead laws of the United States.	Total value of all personal property included in the 30 items as equaliz'd by the State Board.	Total value of all personal property included in the 30 items as equaliz'd by the County Board.	Total value of all personal property included in the thirty items as returned by the assessors.
1	Aitkin	$ 2,075	$ 36,065	$ 36,065	$ 36,065
2	Anoka	3,001	589,765	572,322	568,158
3	Becker	25,407	359,921	346,886	358,159
4	Benton	400	170,377	124,348	121,346
5	Big Stone	52,636	374,092	365,155	364,148
6	Blue Earth	250	1,804,817	1,671,603	1,548,617
7	Brown	17,401	917,528	856,812	729,703
8	Carlton	3,175	131,678	130,292	130,292
9	Carver	433	884,214	834,551	757,393
10	Cass	1,175	34,416	34,113	34,113
11	Chippewa	33,431	485,148	483,396	415,298
12	Chisago	....	479,049	449,160	445,968
13	Clay	53,836	670,400	673,545	670,673
14	Cook	....	735	610	610
15	Cottonwood	50,765	457,920	449,739	424,272
16	Crow Wing	1,501	172,545	172,396	164,705
17	Dakota	700	1,589,678	1,485,597	1,348,645
18	Dodge	....	1,020,349	881,583	866,810
19	Douglas	5,012	730,122	693,263	675,105
20	Faribault	348	1,071,376	1,044,046	898,605
21	Fillmore	60	2,231,951	2,088,944	2,048,172
22	Freeborn	545	1,143,671	1,057,969	935,819
23	Goodhue	650	2,780,310	2,558,674	2,465,194
24	Grant	23,318	274,843	269,514	250,657
25	Hennepin	200	10,485,682	10,317,305	9,638,650
26	Houston	1,980	1,287,378	1,177,240	1,109,089
27	Isanti	3,439	262,371	254,895	217,259
28	Jackson	11,597	338,126	297,423	284,481
29	Kanabec	10,405	41,618	41,073	42,918
30	Kandiyohi	4,188	975,763	963,073	888,393
31	Kittson	19,770	125,758	125,653	126,200
32	Lac qui Parle	32,316	394,476	381,180	372,579
33	Lake	....	9,909	9,725	9,638
34	Le Sueur	500	960,939	886,832	684,426
35	Lincoln	45,283	251,896	242,374	241,763
36	Lyon	20,245	452,032	400,161	400,612
37	McLeod	866	855,292	758,964	700,333
38	Marshall	18,067	122,107	121,113	121,117
39	Martin	25,151	476,682	435,172	433,256
40	Meeker	1,628	854,223	720,072	702,220
41	Mille Lacs	130	80,241	67,743	67,743
42	Morrison	26,708	348,909	338,140	338,140
43	Mower	4,800	1,270,782	1,142,277	1,087,553
44	Murray	32,661	280,547	276,309	270,565
45	Nicollet	1,750	1,045,680	1,039,909	919,346
46	Nobles	25,918	375,213	327,089	316,904
47	Olmsted	800	2,15 ,841	2,148,296	1,997,893
48	Otter Tail	80,690	1,341,057	1,259,029	1,268,614
49	Pine	900	77,051	75,757	74,634
50	Pipestone	43,173	243,133	215,709	215,709
51	Polk	177,640	1,205,067	1,290,885	1,237,543
52	Pope	11,405	461,707	451,168	423,656
53	Ramsey	....	9,489,346	9,225,537	9,297,832
54	Redwood	15,487	441,621	426,843	367,434
55	Renville	41,077	737,751	652,468	624,462
56	Rice	....	2,471,805	2,385,027	2,284,373
57	Rock	17,863	302,866	237,162	236,429
58	St. Louis	....	354,897	347,192	317,205
59	Scott	400	1,015,271	951,286	757,782
60	Sherburne	4,528	310,166	279,458	274,685
61	Sibley	1,525	847,368	725,389	592,475
62	Stearns	2,316	1,580,026	1,420,140	1,318,410
63	Steele	....	1,089,884	1,014,383	984,103
64	Stevens	56,053	475,721	462,086	456,915
65	Swift	65,754	635,962	632,694	607,225
66	Todd	6,377	334,514	249,673	249,673
67	Traverse	36,110	193,047	192,497	190,060
68	Wabasha	1,175	1,270,677	1,118,083	1,108,312
69	Wadena	15,963	198,600	201,259	201,258
70	Waseca	210	864,804	778,729	721,724
71	Washington	....	1,951,779	1,925,767	1,922,319
72	Watonwan	11,835	381,703	359,245	321,619
73	Wilkin	34,474	278,725	284,075	283,816
74	Winona	1,190	2,414,244	2,333,826	1,983,076
75	Wright	182	1,011,546	830,104	818,977
76	Yell'w Medicine	31,865	551,030	403,910	397,300
	Totals	$ 1,222,838	$74,320,190	$70,496,061	$66,825,315

STATEMENT "D"—Abstract of Personal Property in the several Counties of Minnesota, as Equalized by the State Board, 1882.

	COUNTIES.	No. of Persons Assessed Exclusive of Firms.	1. HORSES.					
			One Year Old.			Two Years Old.		
			No.	Value.	Average Value.	No.	Value.	Average Value.
1	Aitkin	47	.....	.....	.....	.....	.....	.....
2	Anoka	1,208	156	$ 3,324	$21 31	234	$ 8,129	$35 74
3	Becker	955	164	3,510	21 39	120	4,178	34 81
4	Benton	681	72	1,463	20 31	86	3,092	36 13
5	Big Stone	1,014	95	1,906	20 06	80	2,761	34 51
6	Blue Earth	8,763	1,094	23,553	21 53	1,023	37,102	36 27
7	Brown	2,223	634	12,992	20 47	588	21,081	35 83
8	Carlton	97	.....	.....	.....	1	50	50 00
9	Carver	2,207	411	8,749	20 29	406	14,578	35 90
10	Cass	49	.....	.....	.....	.....	.....	.....
11	Chippewa	1,212	230	4,630	20 13	246	8,684	35 30
12	Chisago	1,436	114	2,429	23 80	110	3,877	35 24
13	Clay	1,333	144	2,934	20 34	155	5, 58	35 86
14	Cottonwood	1,064	257	5,211	20 27	236	8,263	35 01
15	Crow Wing	423	6	121	19 56	17	585	34 41
16	Dakota	2,608	766	15,485	20 21	730	26,061	35 70
17	Dodge	1,958	709	14,417	20 33	614	21,625	35 22
18	Douglas	2,003	386	8,162	21 15	362	12,489	34 50
19	Faribault	2,649	832	16,712	20 08	830	29,365	35 37
20	Fillmore	4,011	1,459	31,207	23 97	1,442	51,386	35 63
21	Freeborn	2,694	840	17,625	20 99	828	28,818	34 80
22	Goodhue	3,944	1,243	24,712	19 88	1,104	38,686	35 04
23	Grant	730	174	3,482	20 41	.....	4,490	33 02
24	Hennepin	7,735	534	10,413	19 50	520	23,123	44 47
25	Houston	2,197	689	14,517	21 06	634	22,434	35 38
26	Isanti	1,182	78	1,735	22 24	79	2,785	35 25
27	Itasca	10	.....	.....	.....	.....	.....	.....
28	Jackson	1,066	248	5,212	21 00	215	7,665	35 64
29	Kanabec	93	3	55	18 33	1	60	60 00
30	Kandiyohi	2,035	646	13,383	20 72	557	19,490	35 00
31	Kittson	402	17	355	20 88	57	2,151	37 74
32	Lac qui Parle	1,166	223	4,460	20 00	202	7,070	35 00
33	Lake	10	.....	.....	.....	.....	.....	.....
34	Le Sueur	2,644	508	10,874	21 42	478	16,816	35 38
35	Lincoln	769	100	2,118	21 18	74	2,690	36 35
36	Lyon	1,173	268	5,393	20 11	213	7,478	35 10
37	McLeod	2,259	652	13,052	20 01	572	19,972	34 91
38	Marshall	390	11	251	22 82	14	490	34 97
39	Martin	1,349	368	7,597	20 64	300	10,899	36 33
40	Meeker	2,036	530	11,962	22 57	462	16,822	36 33
41	Mille Lacs	218	20	441	22 05	19	682	41 39
42	Morrison	1,281	150	2,992	19 94	116	4,187	36 40
43	Mower	2,967	848	16,960	20 00	753	26,506	35 20
44	Murray	1,021	151	3,056	20 17	154	5,431	35 26
45	Nicollet	2,184	1,093	23,649	21 64	1,040	37,007	35 78
46	Nobles	1,087	206	4,166	20 22	186	6,511	35 01
47	Norman	1,135	132	2,717	20 58	115	4,201	36 00
48	Olmstead	2,934	1,134	23,149	20 41	1,010	36,404	36 04
49	Otter Tail	4,038	717	14,340	20 00	644	23,184	36 00
50	Pine	273	5	130	26 00	3	140	46 67
51	Pipe Stone	869	52	1,221	21 53	57	2,052	36 00
52	Polk	2,417	182	3,806	20 91	171	5,883	34 43
53	Pope	1,429	397	7,973	20 13	324	11,064	34 07
54	Ramsey	3,959	101	2,362	23 38	105	4,308	41 02
55	Redwood	1,207	227	4,524	19 93	213	7,610	32 62
56	Renville	2,170	667	13,416	20 16	885	31,860	36 00
57	Rice	3,161	914	18,426	20 16	815	29,310	36 00
58	Rock	782	190	4,018	21 15	182	6,508	35 42
59	St Louis	340	3	60	20 16	9	347	38 50
60	Scott	2,172	513	11,670	22 74	388	14,497	37 36
61	Sherburne	964	155	3,024	19 50	166	5,835	35 14
62	Sibley	1,946	721	14,420	20 00	689	24,121	35 00
63	Stearns	3,894	1,070	21,853	20 42	1,009	35,609	35 28
64	Steele	1,949	726	14,538	20 25	688	22,943	36 48
65	Stevens	802	125	2,562	20 45	90	3,257	36 18
66	Swift	1,386	285	5,657	19 85	224	8,009	35 75
67	Todd	1,356	161	3,388	21 04	176	6,221	35 34
68	Traverse	625	29	586	20 22	27	955	35 40
69	Wabasha	2,173	519	10,515	16 25	463	16,412	35 42
70	Wadena	593	35	728	21 00	25	922	36 00
71	Waseca	2,051	802	16,518	20 59	700	24,678	35 25
72	Washington	1,984	297	7,472	25 16	219	8,811	40 24
73	Watonwan	1,016	303	6,452	21 29	256	8,991	35 12
74	Wilkin	539	65	1,426	22 42	53	1,804	34 03
75	Winona	2,564	729	15,090	20 69	714	25,680	36 00
76	Wright	3,336	504	10,359	20 56	492	17,488	35 54
77	Yellow Medicine	1,266	241	5,032	20 88	250	9,045	36 18
	Total	128,673	29,210	$602,727	$20 64	27,020	$969,365	$35 87

STATEMENT

	COUNTIES.	1. HORSES.			2. CATTLE.		
		Three years old and over.			One year old.		
		No.	Value.	Average Value.	No.	Value.	Average Value.
1	Aitkin	20	$ 1,615	$80 70	17	$ 80	$4 70
2	Anoka	1,596	103,871	65 07	1,288	7,974	6 22
3	Becker	1,237	81,379	65 80	1,310	8,242	6 14
4	Benton	739	47,740	64 59	785	4,796	6 50
5	Big Stone	1,438	96,151	66 85	612	3,626	5 92
6	Blue Earth	6,984	460 263	65 90	4,802	33,289	6 93
7	Brown	3,332	219 968	66 02	3,381	20,388	6 03
8	Carlton	176	13,070	74 26	24	240	10 00
9	Carver	3,424	239,542	69 96	3,022	18,256	6 04
10	Cass	123	8,766	71 24	30	180	6 20
11	Chippewa	2,099	137 445	65 48	1,386	9,539	6 88
12	Chisago	1,474	97,536	66 17	1,565	9,531	6 07
13	Clay	2,476	157,153	63 47	1,097	6,636	6 04
14	Cottonwood	1,862	128,752	69 06	1,855	12,787	6 89
15	Crow Wing	285	19,827	69 57	74	489	6 61
16	Dakota	6,177	409 151	66 23	2,619	18,298	6 99
17	Dodge	4,208	276,647	65 74	3 503	21 276	6 07
18	Douglas	2,675	184,300	68 90	2,684	15,854	5 90
19	Faribault	5,031	318,465	63 29	4,593	30,050	6 54
20	Fillmore	8,041	539,579	67 10	6,607	41,011	6 20
21	Freeborn	5,781	389,987	67 45	5,498	33,199	6 04
22	Goodhue	9,490	640,429	67 48	5,317	32,124	6 03
23	Grant	1,503	92,486	61 53	1,011	6,087	6 00
24	Hennepin	10,108	768,616	76 04	2,080	18,930	9 10
25	Houston	4,361	281,689	64 58	3,977	24 669	6 19
26	Isanti	1,164	74,196	63 73	1,112	6,876	6 13
27	Itasca	14	893	63 75	....	....	....
28	Jackson	1,518	98,027	64 55	2,149	13,361	6 21
29	Kanabec	97	6,710	69 18	56	327	5 85
30	Kandiyohi	3,918	255 061	65 10	3,873	23,237	6 00
31	Kittson	455	30,878	67 86	216	1,352	6 26
32	Lac qui Parle	2,355	155,430	66 00	1,539	9,234	5 25
33	Lake	6	360	60 00	13	78	6 00
34	Le Sueur	4,290	280,266	65 33	2,246	13,912	6 20
35	Lincoln	1,030	66 579	64 63	776	4,816	6 33
36	Lyon	2,147	136,846	63 72	1,336	7,762	5 80
37	McLeod	3,648	240,197	65 83	3,327	20,034	6 02
38	Marshall	668	43,296	64 80	174	1,052	6 04
39	Martin	200	126,318	63 13	2,006	12,474	6 22
40	Meeker	3,733	243 704	65 28	2,990	18,445	6 16
41	Mille Lacs	307	19,706	64 21	280	1,669	6 30
42	Morrison	1,475	98,569	66 88	1,048	6,370	6 07
43	Mower	6,028	397 848	66 00	4,311	27,160	6 30
44	Murray	1,318	83,657	63 45	1,016	6,406	6 30
45	Nicollet	3,954	261,445	66 04	3,811	23,115	6 06
46	Nobles	1,656	104,360	63 02	1,216	7 361	6 05
47	Norman	2,056	138,970	67 50	1,202	8,368	6 96
48	Olmsted	7,213	477,905	66 25	5,458	33,102	6 06
49	Otter Tail	6,042	399,678	66 15	4,527	27,162	6 00
50	Pine	162	11,664	72 00	38	200	6 45
51	Pipestone	1,132	74,424	65 73	411	2,463	6 00
52	Polk	4,982	381,378	76 56	1,357	7,884	5 80
53	Pope	2,628	174,158	66 45	2,613	15,953	6 03
54	Ramsey	3,546	295,443	83 31	410	3,621	8 83
55	Redwood	2,038	135,446	66 45	1,555	9,785	6 30
56	Renville	3,638	240,108	66 00	3,370	20,220	6 00
57	Rice	5,883	392,820	66 76	3,374	20,244	6 00
58	Rock	1,667	110,920	66 52	1,139	7,028	6 15
59	St. Louis	314	22,055	70 24	52	329	6 32
60	Scott	3,447	226,381	65 66	2,110	12,918	6 12
61	Sherburne	1,493	97,032	64 98	1,337	7,906	5 91
62	Sibley	3,742	243,813	65 15	3,262	19,763	6 05
63	Stearns	6,129	411,774	67 18	5,487	33,774	6 15
64	Steele	4,689	311,505	66 43	3,352	20,322	6 06
65	Stevens	1,709	113,328	66 31	574	3,338	5 81
66	Swift	2,381	156,797	65 89	1,657	10,107	6 09
67	Todd	1,490	92,599	62 15	1,307	7,975	6 09
68	Traverse	996	66,955	67 21	222	1,366	6 14
69	Wabasha	4,605	304,690	66 15	2,497	15,190	6 08
70	Wadena	627	42,065	67 00	239	1,482	6 00
71	Waseca	4,113	273,362	66 46	2,714	16,635	6 13
72	Washington	3,813	278,025	72 91	1,462	8,817	6 03
73	Watonwan	1,759	113,554	64 54	2,158	13,117	6 08
74	Wilkin	1,294	87,708	67 78	323	2,079	6 43
75	Winona	5,684	371,000	65 27	3,822	23,175	6 06
76	Wright	4,274	280,595	65 64	3 705	22,470	6 07
77	Yellow Medicine	2,293	145,044	63 26	1,989	11,908	5 97
	Totals	220,460	$14,909 969	$67 63	156,441	$971,293	$6 21

"D"— Continued.

2. CATTLE.

	Two years old.			Cows.			All other cattle 3 years old and over.		
	No.	Value.	Av'age Value.	No.	Value.	Average Value.	No.	Value.	Average Value.
1	15	$ 255	$17 00	59	$ 1,285	$21 78	155	$ 7,035	$45 38
2	1,053	12,313	11 69	2,633	48,231	18 31	494	10,588	21 43
3	901	9,666	10 72	2,071	37,398	18 06	879	26 756	30 43
4	688	8,291	12 04	1,297	23,100	17 82	634	12 906	20 34
5	436	4,831	11 08	1,061	19,221	18 11	556	16,425	29 54
9	3,724	44,491	11 95	8,905	166,386	18 67	994	19,417	19 52
7	2,245	26,242	11 69	5,828	112,785	19 35	310	7,186	23 18
8	19	294	15 26	58	1,155	19 91	291	9,691	33 30
9	2,501	29,318	11 71	5,572	111,417	19 99	842	21,064	25 01
10	28	336	12 00	54	972	18 00	89	3,280	36 85
11	983	11,107	11 30	2,276	41,254	18 12	606	15,020	24 79
12	1,244	13,582	10 91	3,018	54,491	18 03	998	24,638	24 68
13	765	9,153	11 96	2,325	42,069	18 08	813	19,849	24 42
14	1,192	14,548	12 21	2,965	54,987	18 54	464	12,330	24 64
15	73	884	12 11	282	5,397	19 07	114	4,290	37 63
16	2,033	24,537	12 06	5,724	109,503	19 12	521	13,207	25 35
17	2,293	27,436	11 94	5,197	93,530	16 36	227	4,620	20 35
18	2,010	22,624	11 25	3,953	68,736	17 39	1,434	401,114	27 97
19	3,731	41,358	11 08	7,568	133,386	18 59	942	18,934	20 09
20	4,504	49,451	10 98	10,626	195,369	18 40	424	8,585	20 24
21	3,608	43,070	11 90	8,090	144,107	17 69	530	11 674	22 03
22	3,356	40,365	12 03	8,904	159,973	17 96	418	8,452	20 22
23	728	8,550	11 74	1,492	27,785	18 61	443	12,188	27 50
24	1,893	25,437	13 44	8,892	181,496	20 41	925	23,528	25 44
25	3,155	36,611	11 59	6,253	114,447	18 30	719	14,477	20 10
26	955	10,567	11 06	2,141	39,641	18 51	980	22,725	23 19
27	......	......	......	7	260	37 14	142	5,489	38 65
28	1,533	18,544	12 09	3,156	57,804	18 28	531	10,653	20 06
29	24	284	11 85	151	2,838	18 79	210	6,455	30 74
30	3,151	34,661	11 00	5,487	98,776	18 00	1,175	28,933	24 62
31	114	1,403	12 30	450	8,299	18 45	239	6,555	27 42
32	1,095	13,140	12 00	2,567	46,206	18 00	846	20,741	24 53
33	5	59	11 96	18	323	17 94	19	399	21 00
34	1,745	21,195	12 14	4,881	88,942	18 19	527	11,081	20 98
35	450	5,312	11 80	1,227	28,703	17 91	523	11,634	22 24
36	970	11,113	10 96	2,387	42,390	17 74	713	9,296	22 50
37	2,878	34,474	11 97	6,051	110,007	18 18	1,175	24,673	21 00
38	97	1,171	12 06	382	6,840	17 91	350	9,947	28 42
39	1,680	20,052	11 94	3,556	61,417	17 27	855	17,872	20 90
40	2,422	26,503	10 94	4,816	88,215	18 31	1,211	26,776	22 10
41	208	2,484	11 77	494	8,600	17 40	266	5,495	20 65
42	814	9,206	11 30	1,952	35,599	18 20	919	24,330	26 47
43	2,788	33,456	12 00	6,962	125,316	18 00	543	11,728	21 60
44	597	7,171	12 01	1,780	32,200	18 08	451	10,911	24 19
45	3,125	38,109	12 19	6,042	109,089	18 05	593	12,267	20 68
46	795	9,544	12 00	1,962	35,270	17 97	360	9,001	25 00
47	597	6,683	11 00	2,061	36,487	17 60	909	24,928	27 42
48	3,923	48,028	12 24	7,841	141,495	18 04	481	10,333	21 48
49	3,034	32,767	10 80	7,477	131,595	17 60	2,941	73,525	25 00
50	34	452	13 29	168	3,164	18 83	214	6,783	33 70
51	265	3,219	12 00	751	14,967	19 92	237	9 389	39 61
52	932	9,897	10 62	3,027	54,862	18 21	1 699	51,184	30 13
53	2,156	23,688	11 01	3,413	59,458	17 40	1,335	25,752	24 80
54	416	5,452	13 10	2,718	53,649	19 73	106	2,796	26 37
55	1,254	15,910	11 96	2,676	47,954	17 91	677	15,236	22 50
56	2,401	28,812	12 00	5,348	96,264	18 00	800	20,000	25 00
57	2,521	30,252	12 00	6,071	111,049	18 28	589	11,737	19 92
58	805	9,812	12 18	1,801	32,232	17 88	185	4,066	21 97
59	40	494	12 35	254	4,780	18 85	44	1,230	28 00
60	1,703	20,411	11 97	4,740	86,635	18 26	474	9,506	20 05
61	1,226	14,456	11 79	2,271	39,259	17 28	880	18,189	20 67
62	2,552	31,105	11 71	5,537	99,667	17 98	851	17,020	20 00
63	4,705	56,640	12 04	9,253	166,579	18 00	2,346	47,959	20 44
64	2,294	27,819	12 13	5,516	100,122	18 14	415	9,188	20 65
65	406	4,902	11 26	1,112	20,330	17 52	256	7,487	29 24
66	1,186	14,081	11 92	2 517	44,951	17 86	763	20,261	26 55
67	1,208	14,396	11 92	2,344	40,061	17 12	1,067	25,543	23 94
68	138	1,632	11 82	529	9,452	17 86	335	11,803	35 28
69	1,655	19,940	12 04	4,211	75,927	18 02	163	3,364	20 64
70	157	1,750	11 15	568	10,091	17 77	181	6,535	36 00
71	1,952	23,907	12 24	5,087	92,474	18 13	449	9,587	21 35
72	1,148	13,198	11 49	4,298	84,193	19 50	417	11,387	27 30
73	1,359	16,392	12 06	3,551	63,523	17 89	405	8,826	21 79
74	202	2,396	11 86	658	11,409	17 33	210	7,416	35 27
75	2,817	33,067	11 73	5,861	112,801	19 24	475	9,979	21 01
76	3,054	35,820	11 72	6,591	116,608	17 68	1,769	40,166	22 70
77	1,372	16,011	11 67	2,860	50,962	18 80	583	12 989	22 27
	116,136	$1,365,783	$11 76	272,681	$4,988,227	$18 29	49,536	$1,187,379	$23 96

	COUNTIES.	3. MULES AND ASSES, of all ages.			4. SHEEP.		
		No.	Value.	Average Value.	No.	Value.	Average Value.
1	Aitkin	4	$ 325	$81 25	14	$ 42	$3 00
2	Anoka	45	3,187	70 83	1,341	2,708	2 02
3	Becker	81	5,582	69 11	1,445	2,942	2 02
4	Benton	13	880	67 78	507	1,060	2 08
5	Big Stone	93	7,014	75 41	374	735	1 96
6	Blue Earth	157	10,319	65 72	6,434	12,972	2 00
7	Brown	52	3,680	70 76	2,737	5,586	2 04
8	Carlton	4	300	75 00	6	15	2 50
9	Carver	140	10,029	72 81	6,130	12,474	2 02
10	Cass	2	137	68 75	7	14	2 05
11	Chippewa	68	4,405	64 78	1,757	3,419	1 94
12	Chisago	79	5,218	66 05	3,090	6,232	2 01
13	Clay	416	28,103	67 55	1,128	2,241	1 98
14	Cottonwood	47	3,253	69 21	5,902	11,693	1 98
15	Crow Wing	21	1,575	75 00	26	79	3 03
16	Dakota	181	12,841	70 94	4,248	8,520	2 00
17	Dodge	174	10,970	63 05	3,191	6,321	1 98
18	Douglas	117	8,097	69 20	5,000	9,601	2 00
19	Faribault	97	6,399	65 97	11,546	22,269	1 92
20	Fillmore	202	13,434	66 50	10,087	20,087	1 98
21	Freeborn	203	12,661	62 37	4,966	10,121	2 04
22	Goodhue	582	38,539	66 22	9,327	18,6 6	2 00
23	Grant	71	4,856	68 42	1,318	2,464	2 00
24	Hennepin	379	31,064	81 96	8,413	18,379	2 18
25	Houston	140	8,847	63 18	4,762	9,711	2 02
26	Isanti	43	3,150	73 24	2,180	4,445	2 03
27	Itasca	......	....	....	......	......	......
28	Jackson	45	3,030	67 33	6,477	13,063	1 49
29	Kanabec	10	780	78 00	55	113	2 06
30	Kandiyohi	114	7,854	68 88	8,333	16,831	2 02
31	Kittson	191	13,056	68 36	111	225	2 02
32	Lac qui Parle	84	5,578	66 40	1,250	2,418	1 93
33	Lake	......	....	....	46	92	2 00
34	Le Sueur	111	7,360	66 30	5,862	11,955	2 03
35	Lincoln	45	2,835	63 00	777	1,559	2 00
36	Lyon	125	7,764	62 11	2,976	5,860	1 98
37	McLeod	87	5,869	67 45	4,914	9,853	2 00
38	Marshall	115	8,800	76 51	73	159	2 17
39	Martin	73	4,760	65 19	12,181	24,134	1 93
40	Meeker	198	13,421	67 78	5,615	10,848	1 96
41	Mille Lacs	8	575	71 87	201	396	1 96
42	Morrison	74	4,873	66 00	934	1,854	2 00
43	Mower	149	9,834	66 00	5,230	10,464	2 00
44	Murray	60	3,962	66 03	2,063	4,125	2 00
45	Nicollet	98	6,877	70 20	5,181	10,535	2 03
46	Nobles	102	7,139	69 99	4,728	9,631	2 03
47	Norman	141	9,531	67 50	697	1,376	1 97
48	Olmsted	224	15,277	68 20	15,181	30,396	2 00
49	Otter Tail	250	16, 00	66 00	4,837	9,815	2 02
50	Pine	17	1,250	73 53	4	12	3 00
51	Pipestone	73	4,737	64 90	167	312	2 05
52	Polk	536	37,349	69 75	1,184	2,453	2 07
53	Pope	69	4 724	67 18	3,859	7,669	1 99
54	Ramsey	137	10,575	77 19	415	815	1 96
55	Redwood	110	7 481	68 00	5,844	12,193	2 08
56	Renville	76	5,016	66 00	4 538	9,189	2 02
57	Rice	144	10,080	70 00	7,215	14,430	2 00
58	Rock	88	6,052	68 77	2,248	5,107	2 25
59	St. Louis	3	180	60 00	119	236	2 00
60	Scott	121	8 249	68 17	4,521	8,972	1 98
61	Sherburne	55	3,672	66 75	757	1,491	1 97
62	Sibley	52	3,240	75 00	6,006	12,145	2 02
63	Stearns	489	31,289	63 98	7,435	15,480	2 08
64	Steele	108	7,171	66 63	4,751	9,497	2 00
65	Stevens	143	9,253	64 70	538	1,075	1 99
66	Swift	112	7,223	64 49	1,485	2,877	1 93
67	Todd	83	5,580	67 23	1,806	3,741	2 07
68	Traverse	86	5,692	66 17	59	135	2 29
69	Wabasha	217	14,445	66 56	2,972	6,039	2 02
70	Wadena	30	2 070	69 00	78	156	2 00
71	Waseca	96	6,297	65 59	3,744	7,536	2 00
72	Washington	242	15 527	64 16	2,206	4,537	2 05
73	Watonwan	39	2,580	66 16	3,400	6,924	2 02
74	Wilkin	144	10,546	73 23	151	307	2 03
75	Winona	414	28,640	69 18	6,194	12,303	2 00
76	Wright	166	10,494	63 41	1,092	22,727	2 17
77	Yellow Medicine	99	6 537	66 03	1,198	3,833	2 02
	Totals	9,664	$656,491	$67 93	258,415	$517,749	$2 09

"D."—Continued.

	5. HOGS.			6. WAGONS AND CARRIAGES.			7. SEWING AND KNITTING MACHINES.		
	No.	Value.	Average value.	No.	Value.	Average value.	No.	Value.	Av. value.
1	37	$ 299	$8 08	16	$ 425	$26 56	17	$ 305	$17 94
2	1,259	5,045	4 00	1,012	22,326	22 06	533	5,213	9 78
3	724	2,191	3 02	781	18,947	24 07	391	4,370	11 17
4	852	2,372	2 78	477	8,117	17 01	197	1,578	8 01
5	676	2,082	3 07	755	14,507	19 21	279	3,168	11 35
6	11,064	32,463	2 93	2,793	59,883	21 44	1,298	13,822	10 63
7	3,356	9,838	2 93	1,503	28,180	18 75	642	6,163	9 60
8	29	98	3 38	86	2,224	25 86	19	290	15 26
9	6,547	19,963	3 04	2,257	45,742	20 26	995	8,063	8 10
10	47	199	4 23	43	903	21 00	14	122	8 71
11	1,343	4,804	3 58	1,007	19,774	19 63	379	3,932	10 37
12	1,398	4,230	3 03	1,262	24,364	19 30	544	5,357	9 85
13	962	3,898	4 05	1,306	28,751	22 00	499	6,390	12 80
14	3,020	9,092	3 01	992	15,676	15 80	182	1,585	8 70
15	111	439	3 96	174	4,358	24 80	179	2,722	15 20
16	6,948	21,264	3 06	3,008	70,049	23 28	1,055	12,963	12 28
17	7,494	22,577	3 01	1,871	37,785	20 65	845	8,138	9 63
18	1,952	6,298	3 00	1,630	32 612	20 00	743	7,335	9 87
19	8,471	29,808	3 51	1,912	40,540	21 20	873	8,790	10 06
20	23 935	82,373	3 44	3,245	68,421	21 08	1,346	13,341	10 00
21	9,134	27,807	3 03	2,288	48,115	21 03	910	11,150	12 25
22	9,756	30,964	3 13	4,535	99,139	21 85	1,794	16,155	9 01
23	574	1,663	2 89	712	12,417	17 44	267	3,228	12 09
24	7,190	31,954	4 44	7,368	307,250	41 70	4,277	60,444	14 13
25	17,897	56,965	3 18	2,026	40,354	19 91	858	8,789	10 24
26	647	2,302	3 55	838	17,112	20 42	377	4,544	12 05
27	14	56	4 00	56	1,775	31 79	2	16	8 00
28	2,483	7,724	3 09	839	13,261	15 80	233	2,366	10 15
29	48	202	4 21	68	1,175	17 28	27	271	10 03
30	2,041	6,189	3 03	1,816	32,613	17 95	818	8,215	10 04
31	223	901	4 04	277	6,083	21 94	83	1,086	13 08
32	1,504	6,000	3 98	1,125	21,453	19 05	336	2,919	8 70
33	3	9	3 00	8	179	22 37	7	115	16 43
34	9,955	30,333	3 04	2,322	46,937	20 21	963	9,632	10 00
35	770	2,435	3 16	643	12,554	19 52	188	1,697	9 00
36	1,807	5,509	3 04	992	19,297	19 44	840	2,680	7 88
37	3 866	11,535	2 97	1,901	37,979	19 97	955	7,660	8 02
38	117	462	3 95	274	7,278	26 55	77	821	10 66
39	3,566	10,647	3 00	853	17,029	20 00	301	2,850	9 47
40	2,271	7,043	3 09	1,948	40,143	20 60	807	6,883	8 53
41	244	731	2 99	167	3,215	19 25	69	936	13 57
42	1,744	5,316	3 00	899	17,215	20 00	499	6,432	13 00
43	8 947	26,841	3 00	2,341	45,118	19 27	1,070	10.700	10 00
44	1.252	3.736	2 73	695	14,450	20 79	221	2,218	10 04
45	4,286	13 180	3 07	1,854	41,160	22 20	828	8,813	10 64
46	2,134	6,387	3 00	847	13,964	16 50	361	3 649	10 10
47	595	2,089	3 51	1,073	24,847	23 00	306	3 836	12 54
48	12,204	42,282	3 46	2,936	74,104	25 24	1,336	14,614	10 94
49	3,828	13,417	3 50	3,475	75,228	21 65	1,741	12,208	7 00
50	109	407	3 73	108	3,121	28 96	88	1,366	15 52
51	707	2,729	3 85	525	8,526	16 23	219	1,733	7 91
52	1,483	4,481	3 01	2,189	52,264	23 87	641	7,526	11 74
53	1,331	3,928	2 98	1,293	24,560	19 05	521	4,925	9 45
54	1,179	5,637	4 78	2,938	151 660	51 62	1,629	24,050	14 76
55	1,771	5,136	2 91	970	17,541	18 08	345	2,974	8 62
56	2,782	8,346	3 00	1,568	28,224	18 00	477	4,770	10 00
57	6,826	20,478	3 00	3,135	81,997	26 15	1,259	12,077	9 60
58	3,285	10,971	3 33	688	11,905	17 30	227	1,592	7 01
59	46	306	6 65	251	9,347	37 23	160	2,387	14 92
60	6,271	18,850	3 00	1,818	35,981	19 79	836	8,623	10 31
61	982	2,782	3 01	771	13,330	17 28	373	2,988	8 01
62	5,458	16,344	3 00	1,751	33,272	19 00	661	6,610	10 00
63	6,686	19,909	2 98	3,295	85,137	25 84	1,672	19,650	11 75
64	5,868	20,596	3 51	1,829	38,092	20 83	724	7,369	10 18
65	1,108	3,402	3 07	8,631	17 724	20 53	258	2,041	7 91
66	1,658	5,195	3 13	1,257	25,420	20 22	478	4,793	10 02
67	1,436	4,147	2 89	918	15,542	16 93	444	4,139	9 32
68	266	890	3 34	503	10,006	19 87	144	1,301	9 03
69	9,737	33,180	3 40	2,150	45,249	21 04	955	9,30	9 74
70	223	871	4 00	401	8,070	20 00	244	3 245	13 30
71	5,953	18,088	3 04	1,660	34,241	20 63	790	6,604	8 36
72	3,915	13,770	3 52	2,224	67,286	30 25	1,011	12,911	12 77
73	2,394	7,266	3 03	795	13,333	16 76	307	3,769	12 27
74	351	1,299	3 70	509	11,950	23 47	176	2,397	13 62
75	10,417	31,327	3 00	2,728	74,706	27 38	1,256	15,810	12 58
76	6,180	20,594	3 33	2,488	51,871	20 84	1,331	12 923	9 71
77	1,496	4,540	3 02	1,038	21,476	20 67	381	2,127	5 58
	276,240	$890,446	$3 22	119,739	$2,626,868	$22 00	48,691	$518,777	$10 65

STATEMENT

	COUNTIES.	3. MULES AND ASSES, of all ages.			4. SHEEP.		
		No.	Value.	Average Value.	No.	Value.	Average Value.
1	Aitkin	4	$ 325	$81 25	14	$ 42	$3 00
2	Anoka	45	3,187	70 83	1,341	2,708	2 02
3	Becker	81	5,582	69 11	1,445	2,942	2 02
4	Benton	13	880	67 78	507	1,060	2 08
5	Big Stone	93	7,014	75 41	374	735	1 96
6	Blue Earth	157	10,319	65 72	6,434	12,972	2 00
7	Brown	52	3,680	70 76	2,737	5,586	2 04
8	Carlton	4	300	75 00	6	15	2 50
9	Carver	140	10,029	72 81	6,130	12,474	2 02
10	Cass	2	137	68 75	7	14	2 05
11	Chippewa	68	4,405	64 78	1,757	3,419	1 94
12	Chisago	79	5,218	66 05	3,090	6,232	2 01
13	Clay	416	28,103	67 55	1,128	2,241	1 98
14	Cottonwood	47	3,253	69 21	5,902	11,693	1 98
15	Crow Wing	21	1,575	75 00	26	79	3 03
16	Dakota	181	12,841	70 94	4,248	8,520	2 00
17	Dodge	174	10,970	63 05	3,191	6,321	1 98
18	Douglas	117	8,097	69 20	5,000	9,601	2 00
19	Faribault	97	6,399	65 97	11,516	22,269	1 92
20	Fillmore	202	13,434	66 50	10,087	20,087	1 98
21	Freeborn	203	12,661	62 37	4,968	10,121	2 04
22	Goodhue	582	38,539	66 22	9,327	18,656	2 00
23	Grant	71	4,856	68 42	1,318	2,464	2 00
24	Hennepin	379	31,064	81 96	8,413	18,379	2 18
25	Houston	140	8,847	63 18	4,762	9,711	2 02
26	Isanti	43	3,150	73 24	2,180	4,445	2 03
27	Itasca	....	....	....	....	....	....
28	Jackson	45	3,030	67 33	6,477	13,063	1 49
29	Kanabec	10	780	78 00	55	113	2 06
30	Kandiyohi	114	7,854	68 88	8,333	16,831	2 02
31	Kittson	191	13,056	68 36	111	225	2 02
32	Lac qui Parle	84	5,578	66 40	1,250	2,418	1 93
33	Lake	....	....	....	46	92	2 00
34	Le Sueur	111	7,360	66 30	5,862	11,955	2 03
35	Lincoln	45	2,835	63 00	777	1,559	2 00
36	Lyon	125	7,764	62 11	2,966	5,860	1 98
37	McLeod	87	5,869	67 45	4,914	9,853	2 00
38	Marshall	115	8,800	76 51	73	159	2 17
39	Martin	73	4,760	65 19	12,181	24,134	1 98
40	Meeker	198	13,421	67 78	5,615	10,848	1 96
41	Mille Lacs	8	575	71 87	201	396	1 96
42	Morrison	74	4,875	66 00	934	1,854	2 00
43	Mower	149	9,834	66 00	5,230	10,464	2 00
44	Murray	60	3,962	66 03	2,063	4,125	2 00
45	Nicollet	98	6,877	70 20	5,181	10,535	2 03
46	Nobles	102	7,139	69 99	4,728	9,631	2 03
47	Norman	141	9,531	67 50	697	1,376	1 97
48	Olmsted	224	15,277	68 20	15,181	30,396	2 00
49	Otter Tail	250	16, 00	66 00	4,837	9,815	2 02
50	Pine	17	1,250	73 53	4	12	3 00
51	Pipestone	73	4,737	64 90	167	342	2 05
52	Polk	536	37,319	69 75	1,184	2,453	2 07
53	Pope	69	4,724	67 18	3,859	7,669	1 99
54	Ramsey	137	10,575	77 19	415	815	1 96
55	Redwood	110	7,481	68 00	5,844	12,193	2 08
56	Renville	76	5,016	66 00	4,538	9,189	2 02
57	Rice	144	10,080	70 00	7,215	14,430	2 00
58	Rock	88	6,052	68 77	2,248	5,107	2 25
59	St. Louis	3	180	60 00	119	236	2 00
60	Scott	121	8,249	68 17	4,521	8,972	1 98
61	Sherburne	55	3,672	66 75	757	1,491	1 97
62	Sibley	52	3,240	75 00	6,006	12,145	2 02
63	Stearns	489	31,289	63 98	7,435	15,480	2 08
64	Steele	108	7,171	66 63	4,751	9,497	2 00
65	Stevens	143	9,253	64 70	536	1,075	1 99
66	Swift	112	7,223	64 49	1,485	2,877	1 93
67	Todd	83	5,580	67 23	1,806	3,741	2 07
68	Traverse	86	5,692	66 17	59	135	2 29
69	Wabasha	217	14,415	66 56	2,972	6,039	2 02
70	Wadena	30	2,070	69 00	78	156	2 00
71	Waseca	96	6,297	65 59	3,744	7,536	2 00
72	Washington	242	15,527	64 16	2,206	4,537	2 05
73	Watonwan	39	2,580	66 16	3,400	6,924	2 02
74	Wilkin	144	10,546	73 23	151	307	2 03
75	Winona	414	28,640	69 18	6,191	12,303	2 00
76	Wright	166	10,494	65 41	1,092	22,727	2 17
77	Yellow Medicine	99	6,537	66 03	1,198	3,833	2 02
	Totals	9,664	$636,491	$67 93	258,415	$540,749	$2 09

"D."—Continued.

	5. HOGS.			6. WAGONS AND CARRIAGES.			7. SEWING AND KNITTING MACHINES.		
	No.	Value.	Average value.	No.	Value.	Average value.	No.	Value.	Av. value.
1	37	$ 299	$8 08	16	$ 425	$26 56	17	$ 305	$17 94
2	1,259	5,045	4 00	1,012	22,328	22 06	533	5,213	9 78
3	724	2,191	3 02	781	18,947	24 07	391	4,370	11 17
4	852	2,372	2 78	477	8,117	17 01	197	1,578	8 01
5	676	2,082	3 07	755	14,507	19 21	279	3,168	11 35
6	11,064	32,463	2 93	2,793	59,883	21 44	1,298	13,822	10 63
7	3,356	9,838	2 93	1,503	28,180	18 75	642	6,163	9 60
8	29	98	3 38	86	2,224	25 86	19	290	15 26
9	6,547	19,903	3 04	2,257	45,742	20 26	995	8,063	8 10
10	47	199	4 23	43	903	21 00	14	122	8 71
11	1,343	4,804	3 58	1,007	19,774	19 63	379	3,932	10 37
12	1,398	4,230	3 03	1,262	24,384	19 30	544	5,357	9 85
13	962	3,898	4 05	1,306	28,751	22 00	499	6,390	12 80
14	3,020	9,092	3 01	992	15,676	15 80	182	1,585	8 70
15	111	439	3 96	174	4,358	24 80	179	2,722	15 20
16	6,948	21,264	3 06	3,008	70,049	23 28	1,055	12,960	12 28
17	7,494	22,577	3 01	1,871	37,785	20 65	845	8,138	9 63
18	1,932	6,298	3 00	1,630	32 612	20 00	743	7,335	9 87
19	8,471	29,803	3 51	1,912	40,540	21 20	873	8,790	10 06
20	23 935	82,373	3 44	3,245	68,421	21 08	1,346	13,341	10 00
21	9,136	27,807	3 03	2,288	48,115	21 03	910	11,150	12 25
22	9,756	30,964	3 13	4,535	99,139	21 85	1,794	16,155	9 01
23	574	1,663	2 89	712	12,417	17 44	267	3,228	12 09
24	7,190	31,954	4 44	7,368	307,250	41 70	4,277	60,444	14 13
25	17,807	56,565	3 18	2,026	40,334	19 91	858	8,789	10 24
26	647	2,302	3 55	838	17,112	20 42	377	4,544	12 05
27	14	56	4 00	56	1,775	31 79	2	16	8 00
28	2,483	7,724	3 09	839	13,261	15 80	233	2,366	10 15
29	48	202	4 21	68	1,175	17 28	27	271	10 03
30	2,041	6,189	3 03	1,816	32,613	17 95	818	8,215	10 04
31	223	901	4 04	277	6,083	21 94	83	1,086	13 08
32	1,504	6,000	3 98	1,125	21,453	19 05	336	2,919	8 70
33	3	9	3 00	8	179	22 37	7	115	16 43
34	9,955	30,333	3 04	2,322	46,937	20 21	963	9,632	10 00
35	770	2,435	3 16	643	12,554	19 52	188	1,697	9 00
36	1,807	5,509	3 04	992	19,297	19 44	340	2,680	7 88
37	3 866	11,535	2 97	1,901	37 979	19 97	955	7,660	8 02
38	117	462	3 95	274	7,278	26 55	77	821	10 66
39	3,566	10,647	3 00	853	17,029	19 96	301	2,850	9 47
40	2,271	7,043	3 09	1,948	40,143	20 60	807	6,883	8 53
41	244	731	2 99	167	3,215	19 25	69	936	13 57
42	1,744	5,316	3 05	899	17,215	20 00	499	6,432	13 00
43	8 947	26,841	3 00	2,341	45,118	19 27	1,070	10,700	10 00
44	1,252	3,736	2 73	695	14,450	20 79	221	2,218	10 04
45	4,286	13 180	3 07	1,854	41,160	22 20	828	8,813	10 64
46	2,134	6,387	3 00	847	13,964	16 50	361	3 649	10 10
47	595	2,089	3 51	1,075	24,847	23 00	306	3 836	12 54
48	12,204	42,282	3 46	2,936	74,104	25 24	1,336	14,614	10 94
49	3,828	13,417	3 50	3,475	75,228	21 65	1,744	12,208	7 00
50	109	407	3 73	108	3,121	28 96	88	1,366	15 52
51	707	2,729	3 85	525	8,526	16 23	219	1,733	7 91
52	1,483	4,481	3 01	2,189	52,264	23 87	641	7,526	11 74
53	1,331	3,928	2 98	1,293	24,560	19 05	521	4,920	9 45
54	1,179	5,637	4 78	2,938	151 660	51 62	1,629	24,050	14 76
55	1,771	5,136	2 91	970	17,541	18 08	345	2,974	8 62
56	2,782	8,346	3 00	1,568	28,224	18 00	477	4,770	10 00
57	6,826	20,478	3 00	3,135	81,997	26 15	1,259	12,077	9 60
58	3,285	10,971	3 33	688	11,905	17 30	227	1,592	7 01
59	46	306	6 65	251	9,347	37 23	160	2,387	14 92
60	6,271	18,850	3 00	1,818	35,981	19 79	836	8,623	10 31
61	982	2,782	3 01	771	13,330	17 28	373	2,988	8 01
62	5,458	16,384	3 00	1,751	33,272	19 00	661	6,610	10 00
63	6,686	19,909	2 98	3,295	85,137	25 84	1,672	19,650	11 75
64	5,868	20,596	3 51	1,829	38,092	20 83	721	7,339	10 18
65	1,103	3,402	3 07	8,631	17 724	20 53	258	2,041	7 91
66	1,658	5,085	3 13	1,257	25,420	20 22	478	4,793	10 02
67	1,436	4,147	2 89	918	15,542	16 93	444	4,139	9 32
68	266	890	3 34	503	10,006	19 87	144	1,301	9 03
69	9,737	33,180	3 40	2,150	45,249	21 04	955	9,301	9 74
70	223	871	4 00	401	8,070	20 00	244	3 245	13 30
71	5,953	18,088	3 04	1,660	34,211	20 63	790	6,604	8 36
72	3,915	13,770	3 52	2,224	67,286	30 25	1,011	12,911	12 77
73	2,394	7,266	3 03	795	13,333	16 76	307	3,769	12 27
74	351	1,299	3 70	509	11,950	23 47	176	2,397	13 62
75	10,417	31,327	3 00	2,728	74,716	27 38	1,256	15 810	12 58
76	6,180	20,594	3 33	2,488	51,871	20 84	1,331	12 923	9 71
77	1,436	4,340	3 02	1,038	21,476	20 67	381	2,127	5 58
	279,240	$899,446	$3 22	119,739	$2,626,868	$22 00	48,691	$518,577	$10 65

STATEMENT

	COUNTIES.	8. WATCHES AND CLOCKS.			9. MELODEONS AND ORGANS		
		No.	Value.	Average Value.	No.	Value.	Average Value.
1	Aitkin	40	$ 51	$ 12 97	5	$ 205	$ 41 00
2	Anoka	728	4,063	5 58	110	4,715	42 86
3	Becker	713	2,418	3 39	46	2,170	47 39
4	Benton	270	768	2 84	22	560	25 45
5	Big Stone	417	1,618	3 88	45	1,607	35 71
6	Blue Earth	1,445	5,676	3 94	186	6,795	36 53
7	Brown	1,294	2,639	2 04	43	1,135	26 40
8	Carlton	24	291	12 29	4	205	51 25
9	Carver	1,618	2,574	1 59	79	2,821	35 70
10	Cass	13	45	3 46	1	15	15 00
11	Chippewa	651	1,467	2 25	53	1,715	32 36
12	Chisago	1,044	3,223	3 09	96	3,070	31 98
13	Clay	750	4,868	6 49	66	3,379	51 20
14	Cottonwood	510	1 619	3 17	29	995	34 30
15	Crow Wing	335	5,196	15 51	66	4,513	68 37
16	Dakota	1,355	6,137	4 53	186	7,491	40 27
17	Dodge	947	4,869	5 14	172	6,042	35 12
18	Douglas	1,079	3,477	3 00	97	3,985	41 08
19	Faribault	796	4,319	5 42	152	6,079	40 00
20	Fillmore	714	4,335	6 07	283	9,841	34 77
21	Freeborn	1,171	2,834	2 42	119	4,287	36 03
22	Goodhue	2,080	8,762	4 21	379	8,885	23 44
23	Grant	560	1,024	1 83	38	1,021	27 00
24	Hennepin	5,477	72,834	13 30	887	41,506	46 79
25	Houston	1,238	3,931	3 19	147	5,209	35 43
26	Isanti	773	1,088	1 40	27	1,107	41 00
27	Itaska	7	162	23 14	1	50	50 00
28	Jackson	479	1,129	2 35	33	805	24 33
29	Kanabec	80	200	2 50	2	85	42 50
30	Kandiyohi	1,480	3,296	2 23	95	3,159	33 25
31	Kittson	251	1,552	6 18	14	670	47 85
32	Lac qui Parle	667	1,259	1 89	19	421	22 16
33	Lake	10	120	12 00	2	110	55 00
34	Le Sueur	1,734	3,477	2 00	136	3,404	25 03
35	Lincoln	459	1,468	3 19	21	838	39 90
36	Lyon	454	1,127	2 48	44	1 587	36 07
37	McLeod	1,407	2 627	1 86	117	2,949	25 20
38	Marshall	95	646	6 80	10	335	33 50
39	Martin	308	1,332	4 32	48	1,357	28 27
40	Meeker	1,207	3,586	2 97	129	5,284	40 96
41	Mille Lacs	99	284	2 86	19	975	51 31
42	Morrison	815	2,666	3 27	58	2,537	43 74
43	Mower	1,600	5,426	3 39	262	9,1 0	35 00
44	Murray	512	1,545	3 02	32	1,096	34 25
45	Nicollet	1,173	4,615	3 93	141	4,548	32 25
46	Nobles	580	2,447	4 22	52	1,715	33 00
47	Norman	621	1,822	2 93	30	1,180	39 33
48	Olmsted	962	7,637	7 94	340	13,397	39 40
49	Otter Tail	1,970	7,686	3 90	198	4,950	25 00
50	Pine	190	1,. 61	7 11	21	1,289	61 38
51	Pipe Stone	326	931	2 31	43	1,445	24 30
52	Polk	1,081	4,714	4 36	66	2,433	36 86
53	Pope	994	1,540	1 55	55	1,344	24 44
54	Ramsey	2,824	50,179	17 75	160	8,713	54 45
55	Redwood	670	1,732	2 58	47	1,327	28 24
56	Renville	895	1,790	2 00	55	2,200	40 00
57	Rice	1,925	10,269	5 33	307	8 567	28 00
58	Rock	347	914	2 63	31	708	22 83
59	St. Louis	313	3,973	12 70	34	1,300	38 24
60	Scott	1,591	3,330	2 09	104	3,268	31 42
61	Sherburne	651	903	1 38	63	1,963	31 96
62	Sibley	1,285	2,058	1 60	31	1,240	40 00
63	Stearns	3,012	7,550	2 51	169	5,350	31 66
64	Steele	1,028	5,299	5 14	128	3,929	30 69
65	Stevens	484	1,297	2 67	62	1,855	29 91
66	Swift	996	2,541	2 55	45	1,584	35 20
67	Todd	818	1,464	1 79	45	1,670	37 11
68	Traverse	291	820	2 82	18	509	28 27
69	Wabasha	712	4,382	6 15	183	5,020	27 43
70	Wadena	418	2,110	5 10	61	2,755	45 00
71	Waseca	1,111	2,577	2 32	102	3,037	29 77
72	Washington	1,152	10,564	9 17	197	8,067	40 95
73	Watonwan	621	1,999	3 21	52	2,078	40 00
74	Wilkin	272	1,646	6 05	26	1,210	46 54
75	Winona	1,274	9,157	7 18	225	7,712	34 27
76	Wright	1,811	4,337	2 36	195	8,7 2	41 88
77	Yellow Medicine	810	1,047	1 29	63	1,331	21 12
	Totals	70,881	$347,237	$ 4 80	7,729	$280,631	$

"D"—Continued.

	10. PIANO FORTES. No.	10. PIANO FORTES. Value.	10. PIANO FORTES. Av'r'ge Value.	11. Household & office furniture.	12. Agricultural tools, implements & machinery.	13. Gold and silv'r plate & plated ware.	14. Diamonds & jewelery.	15. Franchises, annuities, royalties, etc.	16. Steamboats, sailing vessels, barges, etc.
1	2	400	$ 200 00	$ 2,210	$ 90				$ 2,000
2	27	3,080	114 07	48,001	20,937	415	$ 120		
3	13	1,405	108 17	22,077	46,882	305	1,095		265
4	17	1,700	100 00	7,388	5,485	20			
5	9	820	91 25	14,028	60,9 4	390	200		
6	116	11,605	99 84	106,351	91,073	686	480		
7	29	2,881	99 34	32,170	53,284	160	230		
8	2	230	115 00	3,430	80	35	15		
9	16	1,708	104 87	48,956	81,064	33	35		400
10				400	701				1,500
11	5	486	97 20	18,849	57,827	81	10		10
12	28	2,885	103 03	40,920	30,750	401	100		
13	38	4,062	106 89	53,444	99,388	1,944	830		6,000
14	6	600	99 99	12,229	43,794	216	20		
15	33	3,577	107 39	41,836	3,649	790	776	50	120
16	113	11,366	100 58	108,649	122,018	2,120	490		800
17	41	4,131	100 76	29,697	75,332	337	5		
18	17	1,869	110 00	42,69	60,973	591	141		48
19	35	3,500	100 00	57,266	84,942	290	90		
20	54	5,418	100 32	80,713	135,677	180	110		
21	38	3,983	104 82	43,441	97,295	220			100
22	134	13,809	103 05	110,472	158,464	1,694	815		207
23	4	245	61 00	10,103	35,975	40			
24	1,218	157,420	129 56	1,017,940	121,170	18,228	20,271	27,360	40,516
25	26	2,634	101 30	45,486	74,901	89	20		2,010
26	3	300	100 00	21,499	38,759	20			700
27				1,345	5				
28	5	550	110 00	9,030	21,686	81			
29				1,773	3,156			50	
30	29	2,945	101 57	30,931	80,852	321	10		
31	5	548	110 00	11,270	20,250	61	15		
32				8,030	69,868	15	5		
33				223	117				
34	24	2,448	102 02	54,719	70,759	577	30		8
35	4	410	102 50	9,774	40,373	20	65		250
36	17	1,799	105 82	18,351	30,301	98			
37	25	2,592	103 68	34,624	67,297	133	30		
38	1	175	175 00	6,040	21,439	120	77		
39	14	1,410	100 71	15,807	29,806	405	151		
40	38	4,695	123 55	38,011	50,418	875	30	5	
41	3	300	99 99	2,993	1,882				
42	7	708	101 64	21,772	34,588	140	50	200	250
43	56	5,600	100 00	66,820	89,602	202	568		
44	5	525	105 00	10,638	35,208	105	55		
45	40	4,094	102 35	59,905	102,598	545	90		
46	19	1,881	99 01	17,784	28,939	219	246	75	5
47	4	405	101 25	17,044	79,534	141			175
48	94	9,455	100 48	118,120	144,141	295	25		
49	51	5,355	105 00	60,233	168,983	501	10		30
50	4	500	125 00	10,707	1,533	168	48		2,502
51	3	300	100 00	9, 43	32,469	80	25		
52	34	3,370	99 12	47,3 5	171,120	410	261		145
53	2	192	96 00	12,710	49,794	65		15	
54	704	86,315	122 60	807,538	25,689	30,652	29,757		6,038
55	15	1,605	106 99	17,701	44,277	55			
56	6	600	100 00	14,513	61,711	93			200
57	185	20,348	110 25	142,028	109,415	3,380	400		
58	13	1,406	108 14	8,748	27,000	15			
59	68	7,360	104 23	42,599	536	891	745		33,650
60	29	2,881	109 34	57,932	59,357	75	45		100
61	22	2,139	97 24	13,141	24,359	318		100	200
62	14	1,400	100 00	33,004	55,239		130		
63	102	12,208	119 61	84,362	89,654	1,472	400		37
64	69	7,052	102 20	51,853	99,147	258			
65	16	1,600	100 59	13,608	40,051	620	775		
66	14	1,410	100 70	22, 68	69,694	168	25		
67	1	50	50 00	12,712	17,712	10			142
68	8	757	94 68	7,370	38,366	35			
69	90	9,148	101 63	61,262	69,710	400	500		6,500
70	10	1,040	104 00	14,420	15,766	110	250	10	
71	26	2,668	102 53	35,848	60,952	78			70
72	127	15,770	124 18	132,614	83,8 7	2,005	2,825	4,000	39,340
73	16	1,599	99 94	15,416	27,078	185			
74	8	750	93 75	14,684	56, 94	64	14		
75	135	15,480	114 66	159,179	112,943	280	280	1,550	8,505
76	17	1,657	97 44	49,711	61,057	186	165		570
77	3	292	97 50	8,882	38,323	75		60	
	4,201	$485,906	$115 66	$4,533,415	$4,358,005	$76,412	$63, 55	$33,475	$153,393

STATEMENT

	COUNTIES.	17 Goods & Merchand'e.	18 Material & Manufactured Articles.	19 Manuf'r's Tools, Imple'ts and Mach'y, includ'g Eng's and Boilers.	20 Moneys of Banks, Bankers, Brokers, or Stock Jobbers.	21 Credits, Banks, Bankers, Brokers or Stock Jobbers.	22 Moneys other than Bankers etc.
1	Aitkin........	7,750	150	3,230	....	....	....
2	Anoka.........	68,821	173,005	4,170	3,125	3.790	24 847
3	Becker........	61,638	13,020	1,795	11,500	....	8,161
4	Benton........	14,906	345	2 540	1,000	800	6,951
5	Big Stone. ..	42,575	2,745	1,122	....	7,200	4,100
6	Blue Earth....	219,159	20,405	17,417	3,510	4,275	33,160
7	Brown.... ..	92,565	11,477	15,131	8,400	13.120	27,696
8	Carlton.......	19,700	48,200	25,100	200	....	300
9	Carver........	110,808	3,770	7,970	14,140	7,475	64,230
10	Cass..........	3,275	17,000	6,000	....	....	....
11	Chippewa.. ..	51,510	1,070	1,981	958	3,885	10,856
12	Chisago.... .	70,667	14,539	7,583	1,480	5,536	13,188
13	Clay..........	137,747	13,653	28,610	590	20,200	8,505
14	Cottonwood. .	24,655	40	905	513	3,000	13,681
15	Crow Wing...	131,592	12,300	15,840	2,335	1,200	1,150
16	Dakota	263,825	37,990	7,585	2,590	4,850	68,748
17	Dodge........	85,572	1,485	3,255	8,115	6,638	29,680
18	Douglas.......	147,850	8,636	13,693	19,996	150	50,547
19	Faribault.....	114,387	14,211	2,745	7,430	5,600	26,413
20	Fillmore......	215,754	37,937	5,815	13,162	29,320	106,425
21	Freeborn....	116,912	13,860	4,243	....	18,383	23,631
22	Gooddhue...	294,133	60,230	10,919	9,126	21,638	72,622
23	Grant..	25,125	....	260	....	1,000	14,810
24	Hennepin.....	2,430,590	1,475,100	166,015	101,711	73,117	152,283
25	Houston......	89,307	9,165	3,570	....	200	31,912
26	Isanti........	19,070	1,596	5,750	....	....	1,660
27	Itasca........	1 645	....	200	....	....	....
28	Jackson......	25,069	2,310	1,259	2,600	100	4,360
29	Kanabec.....	3,450	100	....	....	....	500
30	Kandiyohi...	96,823	5,330	1,988	46,835	25,499	28,673
31	Kittson..	20,645	135	240	1,000	1,050	1,689
32	Lac qui Parle	13,360	250	145	50	100	5,422
33	Lake..........	300	1,000	1,100	....	....	940
34	Le Sueur......	114,655	10,438	20,495	1,000	8,000	61,925
35	Lincoln.......	23,460	200	90	....	425	578
36	Lyon	75,510	540	3,185	19,101	1,340	5,390
37	McLeod..	85,510	2,216	8 169	23,086	400	1,769
38	Marshall......	19,526	1,002	1,325	....	....	4,137
39	Martin........	38,418	1,193	2,135	180	1,750	8,420
40	Meeker.......	70,522	8,730	7,463	10,405	1,450	6,006
41	Mille Lacs....	18,053	1,100	970	....	....	6,740
42	Morrison......	48,257	7,165	15,645	6,750	....	4,660
43	Mower........	144,742	2,685	6,850	1,415	3,670	26,406
44	Murray.......	11,743	2,320	2,035	....	5,020	1,503
45	Nicollet	82,104	9,681	4,919	....	100	3,985
46	Nobles	42,068	795	1 428	12,988	3,315	2,910
47	Norman.......	54,464	225	1,255	400	8 430	16,147
48	Olmstead... .	243,442	15,862	7,768	10,620	1,160	59,034
49	Otter Tail.....	205,281	51,892	32,610	16,775	1,948	49,616
50	Pine..........	14 850	7,405	9,068	....	1,000	1,584
51	Pipe Stone....	18,248	5,590	720	679	2,843	2,463
52	Polk..........	146,450	10,460	5,544	22,530	325	9,687
53	Pope..........	22,135	575	1,965	6,100	2,000	17,977
54	Ramsey.......	3,118,797	155,185	237,792	102,445	51,700	281,518
55	Redwood....	46,020	865	710	3,459	....	3,865
56	Renville.....	41,490	600	1,014	1,000	....	9,970
57	Rice..........	247,262	43,375	25,225	11,815	3,545	146,960
58	Rock.........	48,060	1,348	745	500	2,593	250
59	St. Louis......	148,910	16,150	26,535	71,120	312	3,120
60	Scott..........	93,179	21,054	8,790	....	400	46,445
61	Sherburne....	18,375	6,910	4,160	....	500	2,530
62	Sibley.........	50,575	2,932	2,834	....	12,950	37,222
63	Stearns.......	207,279	26,484	24,380	15,791	9,363	39,381
64	Steele.........	122,315	9,965	7,871	500	100	40,277
65	Stevens.......	73,344	274	2,615	17,700	4,200	2,214
66	Swift.........	58,008	4,682	1,680	5,114	1,593	6,017
67	Todd.........	20,450	5,350	15,844	900	2,640	4,784
68	Traverse......	17,695	900	1,345	5,569	....	....
69	Wabasha.....	133,042	14,720	8,845	20	....	145,251
70	Wadena......	10,230	1,666	13,230	18,843	10,694	2,300
71	Waseca.......	90,506	4,515	2,715	31,840	....	25,225
72	Washington..	271 210	237,360	60 005	3,700	3,820	191,513
73	Watonwan. .	28,925	3,095	1,915	400	627	24,271
74	Wilkin.......	40,913	545	2,030	1,231	1,200	4,650
75	Winona.......	361,955	244 984	13,191	1,200	7,159	67,700
76	Wright........	105,096	2,538	17,460	7,063	1,036	14,275
77	Yellow Med...	50,882	2,249	535	4,154	497	16,715
	Total......	$11,947,5.1	$2,948,904	$983,371	$697,159	$416,311	$2,256,550

"D."—Continued.

	23. Credits other than Bankers etc.	24. Bonds and Stock.	25. Shares of Bank Stock.	26 Shares of Capit'l Stock of Co's not of this State.	27. Stock and furniture of saloons and eating houses, including bill'rd tables &c	28. All other Property not included in the preceeding 27 items.	29. Elevators, warehouses, and other improvements on lands, the title to which is vested in any R.R. Company.
1	$........	$.	$	$........	$ 1,750	$........	$ 8,000
2	9,604	4,675	29,000	....	1,270	10,366	197
3	11,760	....	....	300	2,010	2,846	6,061
4	3,975	....	....	....	1,405	1,064	1,900
5	1,070	....	....	....	2,100	8,888	7,624
6	186,288	1,300	120,364	....	7,185	13 912	4,194
7	42,277	190	50,000	150	3,314	3,406	14,593
8	4,500	....	....	....	4,090	16,685	6,450
9	62,611	....	....	....	7,448	4,058	8,150
10	200	....	....	....	....	368	289
11	3,560	....	....	....	2,225	4,228	38,169
12	66,819	....	7,346	....	3,400	11,333	6,075
13	1,435	850	21,420	2,265	28,736	20,468	31,729
14	2 883	....	....	....	75	8,417	1,149
15	19,829	50	48,000	2,150	13,995	5,031	2,025
16	233,818	11,005	203,000	....	10,686	18,654	2,600
17	53,550	....	45,000	....	1,060	13 433	12,460
18	66,873	....	....	1,025	4,461	12,371	20,875
19	32,597	....	....	....	1,400	6,576	4,695
20	336,473	....	....	....	6,622	12,033	8,520
21	24,557	....	....	....	5,595	18,315	7,020
22	610 580	400	114,496	4,060	11,835	78,053	7,400
23	7,360	....	10,000	....	1,590	1,204	21,447
24	1,369 156	185,174	2,364,400	23,058	91,400	150,769	50,640
25	294,141	8,900	....	120	2,962	17,068	7,560
26	10,376	....	....	....	180	433	....
27	....	....	....	....	200	....	210
28	9,774	....	....	....	1,010	1,280	2,004
29	....	190	....	....	135	575	50
30	70 612	10,000	....	....	5,032	8,512	18,710
31	1,400	....	....	....	1,720	2,180	6,030
32	14,612	....	....	....	....	3,685	2,023
33	....	....	....	....	....	....	....
34	72,288	1,500	....	....	5,996	6,696	3,625
35	5,609	....	....	....	612	4,005	5,449
36	3,975	....	....	62	2,845	4,709	14,107
37	57,630	600	50,060	10	3,328	2,015	14,850
38	....	....	....	....	800	1,090	3,580
39	4,450	1,300	....	....	992	4,555	3,938
40	74,604	472	20,500	....	5,936	9,686	16,900
41	17,733	....	....	175	620	257	....
42	5,425	50	....	....	2,560	19,726	1,878
43	66,310	1,750	45,274	1,650	5,358	14,434	11,715
44	817	....	....	....	200	6,539	2,890
45	130 898	4,750	50,000	100	3,100	7,391	3,800
46	2,350	2,908	....	455	300	4,821	5,355
47	13,166	....	....	....	4,089	3,739	8,619
48	261,662	1,284	208,000	....	8,700	10,419	24,125
49	80,757	23,710	91,115	19,695	11,088	12 408	27,526
50	2,077	....	....	....	2,305	19,359	1,000
51	1,298	223	....	....	728	5,340	8,750
52	14,097	500	51,000	....	9,465	30,661	35,367
53	30,076	300	....	....	250	3,583	1,430
54	1,420,314	311,696	2,650,000	53,462	91,867	419,711	5,500
55	12,725	....	....	....	1,050	2,912	14 236
56	6,350	....	200	....	1,830	2,613	25,645
57	375,699	37,022	230,000	451	10,622	59,035	7,325
58	9,383	1,550	....	....	3,140	3,227	5,865
59	1,750	580	....	100	16,940	8,301	65,300
60	102,750	1,150	43,839	9,000	6,561	10,630	200
61	895	4,515	....	100	....	5,958	1,225
62	64,410	....	....	....	3,981	4,293	5,034
63	182,936	950	43,000	....	13,559	9,958	8,520
64	138,684	....	74,258	....	6,970	11,373	9,610
65	20,986	9,666	....	....	2,330	7,400	20,700
66	12,374	162	....	....	4,175	15,490	25,215
67	16,169	687	....	....	875	2,890	780
68	....	....	....	....	1,300	2,686	5,642
69	33,838	156	86,922	....	13,758	8,232	9,150
70	5,410	....	....	....	2,375	4,760	3,200
71	36,493	....	31,450	....	4,800	3,339	12,225
72	357,180	23,510	280,000	....	16,035	47,225	3,500
73	3,383	50	....	....	1,180	685	2,300
74	1,360	....	....	....	3,440	5,293	16,820
75	366,013	47,700	167,700	....	15,730	10,682	16,075
76	78,462	....	....	....	5,326	6,907	13,995
77	11,030	400	....	....	200	8,753	6,973
	$7,656,486	$701,906	$7,128,344	$118 388	$522,096	$1,289,057	$788,958

STATEMENT "D"—Concluded.

	COUNTIES.	30. Improvm'ts on lands held under homestead laws, of the United States.	Total value of all Personal Property included in the 30 items as Equalized by the State Board.	Total value of all Personal propt'y included in the 30 items, as equalized by the County Board.	Total value of all Personal property included in the 30 items, as returned by the Assessors.
1	Aitkin	$ 1,309	$ 39,270	$ 34,100	....
2	Anoka	3,127	650,637	627,566	623,523
3	Becker	34,730	435,500	460,544	447,740
4	Benton	486	166,628	129,064	125,753
5	Big Stone	57,012	386,560	374,616	349,600
6	Blue Earth	....	1,767,795	1,657,741	1,523,692
7	Brown	9 689	858,596	790,929	746,644
8	Carlton	7,535	164,473	164 914	164,403
9	Carver	84	967,169	941,149	830,726
10	Cass	2,762	47,297	45,570	45,570
11	Chippewa	24,936	487,946	471,082	441,760
12	Chisago	....	540,800	526,596	510,427
13	Clay	63,946	866,804	861,102	859,844
14	Cottonwood	80,325	432,293	395,079	394,086
15	Crow Wing	7,482	364,252	371,700	368,634
16	Dakota	....	1,866,301	1,846,898	1,394,544
17	Dodge	....	926,003	891,712	816,582
18	Douglas	3,974	880,452	890,088	812,123
19	Faribault	935	1,071,576	1,038,311	919,119
20	Fillmore	380	2,122,962	2,091,834	2,043,810
21	Freeborn	950	1,173,960	1,147,732	1,021,004
22	Goodhue	....	2,746,834	2,620,350	2,576,763
23	Grant	21,237	332,138	320,387	311,464
24	Hennepin	525	11,651,817	11,657 424	11,302,706
25	Houston	1,476	1,234,292	1,185,366	1,150,358
26	Isanti	5,639	298,255	288,651	230,854
27	Itasca	....	12 306	12,744	12,744
28	Jackson	10,269	344,026	298,750	291,345
29	Kanabec	1,495	31,029	30,438	31,172
30	Kandiyohi	2,918	996,688	900,363	926,679
31	Kittson	33,429	176,218	188,650	188,930
32	Lac qui Parle	23,894	437,788	414,213	404,161
33	Lake	....	5,524	5,505	5,505
34	Le Sueur	....	991,343	957,049	803,403
35	Lincoln	39,644	276,312	261,344	258,713
36	Lyon	21,543	466,961	419,188	417,341
37	McLeod	2,540	897,740	856,230	750,043
38	Marshall	22,455	163,314	173,748	172,410
39	Martin	21,114	454,792	425,356	415 717
40	Meeker	293	848,636	731,110	718,869
41	Mille Lacs	174	97,187	92,728	91,827
42	Morrison	27,026	418,998	395,769	395,769
53	Mower	....	1,251,587	1,178,750	1,093,524
44	Murray	30,239	289,801	275,607	284,718
45	Nicollet	1,175	1,063,644	1,035,283	962,878
46	Nobles	20,843	370,891	352,978	328,768
47	Norman	59,676	534,544	552,456	546 544
48	Olmstead	....	2,084,255	2,081,345	2,039,216
49	Otter Tail	79,547	1,781,168	1,739,099	1,712,589
50	Pine	710	106,155	109,832	106,032
51	Pipe Stone	48,298	265,775	278,922	238,009
52	Polk	169,223	1,354,064	1,362,466	1,412,722
53	Pope	13 213	529,116	507,777	492 260
54	Ramsey	....	10,505,245	10,447,765	10,700,257
55	Redwood	11,628	445,057	403,100	358,952
56	Renville	33,100	710,176	647,705	618,687
57	Rice	....	2,215,663	2,200,618	2,109,961
58	Rock	14,058	339,721	281,836	277,083
59	St Louis	....	491,932	492,094	470,346
60	Scott	....	933,719	875,785	769,291
61	Sherburne	3,403	301,658	271,862	265,131
62	Sibley	3,266	802,128	738,456	603,402
63	Stearns	2,380	1,730,757	1,571,918	1,519,450
64	Steele	....	1,178,623	1,099,271	1,008,667
65	Stevens	36,293	446,186	438,220	409,560
66	Swift	49,258	587,032	532,797	549,929
67	Todd	6 642	335,106	289,417	289,417
68	Traverse	36,372	230,159	219,119	218,759
69	Wabasha	334	1,168,442	1,063,901	1,043,727
70	Wadena	14,989	242,173	245,395	240,967
71	Waseca	50	878,315	762,036	669,929
72	Washington	300	2,320,284	2,314,939	2,268,679
73	Watonwan	10,437	390,350	350,217	301,409
74	Wilkin	34,178	327,759	328,027	324,500
75	Winona	1,520	2,393,273	2,364,356	2,247,442
76	Wright	198	1,023,906	911,612	881,315
77	Y. Medicine	19,697	461,299	387,606	387,137
	Total	$1,195,151	$79,219,445	$76,776,857	$73,656,614

STATEMENT "E."—Abstract of Assessment of Real Property in the Several Counties of Minnesota, for the Year 1882, *as Equalized by the State Board.*

	COUNTIES.	1. No. of acres of land, exclusive of town and city lots.	2. No. of acres improved.	3. No. of acres unimproved.
1	Aitkin	67,032		67,032
2	Anoka	191,933	20,622	171,311
3	Becker	180,143	20,105	156,762
4	Beltrami	36,597		36,597
5	Benton	186,781	12,405	174,376
6	Big Stone	77.931	14,902	63,028
7	Blue Earth	457,843	156,250	301,593
8	Brown	300,741	75,455	225,286
9	Carlton	97,595	222	97,373
10	Carver	221,395	52,692	168,703
11	Cass	362,589		362,589
12	Chippewa	155,582	37,507	118,075
13	Chisago	237,367	21,485	215,882
14	Clay	266,793	60,820	205,972
15	Cook	22,337		
16	Cottonwood	167,944	36,076	131,868
17	Crow Wing	35,074	437	34,637
18	Dakota	360,908	229,169	131,829
19	Dodge	274,020	138,708	135,312
20	Douglas	326.334	49,539	276,795
21	Faribault	424,975	97.488	327,487
22	Fillmore	543,153	265.748	277.405
23	Freeborn	401,301	150,145	251,156
24	Goodhue	488,070		
25	Grant	162,974	21,172	141,802
26	Hennepin	337,905	94,175	243.730
27	Houston	343,357	130,744	212,613
28	Isanti	218.510	23,655	194,855
29	Itasca	143.559		143.559
30	Jackson	190,530	20.747	169,783
31	Kanabec	143,917	1,926	141,991
32	Kandiyohi	355,568	88,887	266.680
33	Kittson	61,321	7.422	53,899
34	Lac qui Parle	234.324	52,670	181.654
35	Lake	89,438	164	89,274
36	Le Sueur	277.150	70.697	206.453
37	Lincoln	57.182	10.986	46.196
38	Lyon	169,034	42,026	127,008
39	McLeod	292.172	68,874	223,298
40	Marshall	74.710		
41	Martin	232,792	30,071	202,721
42	Meeker	331,268	80.385	250,883
43	Mille Lacs	197,412	2.344	195,068
44	Morrison	290,123	24 100	266.023
45	Mower	436.598	217.434	219,164
46	Murray	149,695	20.492	129,203
47	Nicollet	268,148	84,951	183,197
48	Nobles	194.087	35,466	158,621
49	Norman	185,393	35,232	150.161
50	Olmsted	418,588	280,828	137.760
51	Otter Tail	599 329	101,905	497,424
52	Pine	229.810	774	229,036
53	Pipe Stone	26.458	5,347	21,111
54	Polk	375.658	115,048	260.610
55	Pope	268,397	58,034	210 363
56	Ramsey	82,859	17,848	65.011
57	Redwood	261.595	47,956	213.639
58	Renville	341,491	74,811	266.680
59	Rice	314.765	122.225	192,540
60	Rock	173,419	57.312	116,107
61	Saint Louis	405,670		
62	Scott	212,916	61.826	151,090
63	Sherburne	190.483	30.974	159,509
64	Sibley	333,174	71 678	261.496
65	Stearns	684.325	133,616	550.709
66	Steele	266,360	114.003	152,357
67	Stevens	187.878	41,145	146,733
68	Swift	201,155	46.070	155.085
69	Todd	346,555	24.276	322.279
70	Traverse	93.209	12 323	80.886
71	Wabasha	332,941	199,477	133.464
72	Wadena	70,288	8,228	62,060
73	Waseca	263,194	99.481	163.713
74	Washington	247.796	102,282	145.514
75	Watonwan	149.056	32,540	116.516
76	Wilkin	203.041	25.946	177,095
77	Winona	395,557	205.343	190,214
78	Wright	386,142	77,330	308,812
79	Yellow Medicine	188,884	35,918	152,966
	Totals	19,572,688	4,808,939	13,769,663

STATEMENT

	COUNTIES.	4. Value of Land exclusive of structures and other improvements.	5. Average value of Land per acre, exclusive of all improvements	6. Value of improvement on lands other than Town and City Lots, exclusive of structures.	7. Value of structures on Lands other than Town and City Lots.
1	Aitkin	$ 18 ,555	$ 2 69	....	....
2	Anoka	506,614	2 64	$ 44,5 0	$ 102,441
3	Becker	69 ,853	3 83	41,462	62,5 3
4	Beltrami	9 ,141	2 71	....	....
5	Benton	469,741	2 51	16,695	21,890
6	Big Stone	369,618	4 74	15,251	28,786
7	Blue Earth	4,401,434	9 61	189 437	35 ,234
8	Brown	1,764,412	5 87	241,670	91,842
9	Carlton	425,711	4 75	12,240	25,362
10	Carver	1,608,634	9 60	948,342	191,207
11	Cass	127,879	3 11	....	....
12	Chippewa	707,294	4 54	62,332	50,021
13	Chisago	866,049	3 65	98,635	192,148
14	Clay	1,479,066	5 55	147,087	90,871
15	Cook	55,844	2 50	....	2 0
16	Cottonwood	631,193	3 75	38,9 4	79,751
17	Crow Wing	128,722	3 67	2,2 2	10,568
18	Dakota	4,063 666	11 25	56,758	389,904
19	Dodge	2,484,818	9 07	144,959	233,096
20	Douglas	1,542,897	4 72	134,428	100,113
21	Faribault	2,883,058	6 79	106,104	225,655
22	Fillmore	5,511,862	10 14	....	376,966
23	Freeborn	3,653,899	9 69	87,410	208,948
24	Goodhue	5,935,800	12 16	....	823,802
25	Grant	741,689	4 55	28,394	50,193
26	Hennepin	10,857,720	25 00	141,127	1,943,184
27	Houston	1,902,752	5 54	471,311	343,436
28	Isanti	432,049	1 97	67,285	86,321
29	Itasca	385,042	2 68	....	....
30	Jackson	72 ,330	3 71	21,747	43,211
31	Kanabec	556,107	3 86	6,760	18, 92
32	Kandiyohi	1,902,169	5 35	141,681	202,348
33	Kittson	178,447	2 90	27,718	14,062
34	Lac qui Parle	1,022,229	4 33	61,039	42,577
35	Lake	220,790	2 47	985	4,700
36	Le Sueur	2,234,671	8 04	214,295	153,834
37	Lincoln	203,193	3 55	15,010	17,886
38	Lyon	744,122	4 40	31,255	67,209
39	McLeod	1,961,833	6 70	134,585	160,417
40	Marshall	....	....	....	....
41	Martin	1,133,948	4 87	37,589	80,878
42	Meeker	2,062,963	6 22	104,135	144 812
43	Mille Lacs	373,025	1 87	17,627	25,767
44	Morrison	1,108,058	3 79	39,184	53,982
45	Mower	3,481,652	7 97	254,559	3 0,313
46	Murray	569,026	3 80	32,910	38,447
47	Nicollet	2,158 934	8 02	96 650	183,980
48	Nobles	730,644	3 76	39,471	69,742
49	Norman	751,978	4 04	84,212	35,346
50	Olmsted	4,454,183	10 64	473,844	6 3,212
51	Otter Tail	2,724,0 3	4 71	177,049	219,740
52	Pine	406, 50	1 76	6,772	17,731
53	Pipe Stone	88,830	3 34	11,407	6,734
54	Polk	1,527,961	4 08	228,566	110,665
55	Pope	1,211,730	4 51	56,910	61,488
56	Ramsey	2,508,425	27 86	....	235,400
57	Redwood	1,245,385	4 75	49,586	70,344
58	Renville	1,580,027	4 90	157,263	80,274
59	Rice	3,419,0 4	10 86	....	497,788
60	Rock	686,085	3 95	79,499	70,184
61	St. Louis	1,6 8,354	4 04	1,715	45,584
62	Scott	1,466,252	6 88	558,947	202,193
63	Sherburne	512,634	2 69	19,869	75,084
64	Sibley	2,216,276	6 65	234,19	117,060
65	Stearns	3,262,119	4 77	393,748	390,689
66	Steele	2,643 948	9 55	124,341	208 355
67	Stevens	826,030	4 39	57,415	107,262
68	Swift	907 067	4 50	84,216	83, 09
69	Todd	963,157	2 78	52,761	31,625
70	Traverse	452,859	4 85	14,419	21,158
71	Wabasha	2,861,739	8 39	....	302,106
72	Wadena	26 ,984	3 75	17,996	20,070
73	Waseca	2,561,647	9 72	160,887	138,611
64	Washington	751,322	4 13	1,6 0,833	426, 17
75	Watonwan	714,945	4 78	37,732	59,116
7	Wilkin	920,061	4 53	37,021	30,113
	Winona	2 968,385	7 43	767,291	612 365
78	Wright	2,585,433	6 69	2 2,636	213,042
79	Yellow Medicine	810,836	4 29	33,845	22,672
	Totals	$127,006,852	$ 6 51	$10,178,838	$12,911,963

"E—Continued.

	8. Value of lands other than town and city lots, includi'g struct'res and all other improvements.	9. Average value of land per acre, including all improv'm'ts.	10. Value of town and city lots, exclusive of structures and other improvements.	11. Value of structures and other improvements on town and city lots.	12. Value of town and city lots, including structures and other improvements.
1	$180,555	$2 69	....	....	$ 28,155
2	653,635	3 41	$143,066	$435,780	578,848
3	794,828	4 41	34,573	80,925	115,498
4	99,141	2 71	....	....	....
5	508,326	2 72	71,044	77,160	148,204
6	413,655	5 30	39,378	70,755	110,133
7	4,944,105	10 79	709,545	632,224	1,341,769
8	2,037,924	6 97	207,209	238,040	445,249
9	463,313	6 35	9,284	15,342	24,626
10	2,748,183	12 44	43,477	151,274	194,751
11	1,127,879	....	....	....	....
12	819,647	5 25	54,040	57,559	111,599
13	1,156,832	4 87	62,719	153,409	216,128
14	1,717,624	6 40	379,150	207,730	586,880
15	56,094	2 51	....	....	....
16	749,898	4 46	15,525	63,451	78,976
17	1[illegible]1,522	4 04	571,669	337,670	909,339
18	4,510,328	12 48	269,353	465,995	735,348
19	2,862,873	10 45	73,989	212,315	286,304
20	1,777,438	5 44	165,086	157,170	322,256
21	3,216,817	7 56	127,889	265,039	392,928
22	5,888,828	10 84	....	....	771,213
23	3,950,258	9 83	249,934	221,501	471,435
24	6,759,602	13 84	650,545	906,861	1,566,406
25	820,276	5 63	12,798	25,630	38,428
26	12,912,030	27 [illegible]9	22,869,827	8,277,676	31,147,503
27	2,717,499	7 91	123,817	247,894	371,711
28	585,655	2 68	2,750	7,510	10,260
29	385,042	....	....	....	....
30	791,288	4 15	18,758	35,150	53,908
31	580,959	4 04	....	....	....
32	2,246,198	6 33	62,708	169,451	232,159
33	220,227	3 59	102,026	54,000	156,025
34	1,125,845	4 78	1,760	4,210	5,970
35	226,475	2 53	....	....	....
36	2,602,800	9 38	152,659	187,271	339,930
37	236,069	4 12	11,231	41,545	52,776
38	851,586	5 03	60,194	122,260	182,454
39	2,256,835	7 71	66,777	172,243	239,020
40	396,429	5 30	....	....	55,485
41	1,252,415	5 37	36,845	52,087	88,932
42	2,311,910	6 97	108,084	203,785	311,869
43	416,419	2 10	23,862	56,016	79,878
44	1,201,224	4 14	86,547	55,195	141,742
45	4,066,524	9 31	258,182	329,184	587,366
46	640,383	4 28	14,853	27,975	42,828
47	2,439,564	9 09	143,811	205,922	349,[illegible]33
48	839,857	4 82	49,008	93,520	142,528
49	871,537	4 70	22,980	36,260	59,240
50	5,581,239	13 33	538,664	680,936	1,219,600
51	3,120,842	5 21	939,960	309,183	1,249,143
52	430,853	1 87	18,039	38,201	56,240
53	106,971	4 03	28,825	25,007	53,832
54	1,867,192	4 98	364,092	183,260	547,352
55	1,330,128	4 95	12,850	23,205	36,055
56	2,543,825	30 71	22,960,797	8,017,947	30,978,744
57	1,365,315	5 21	90,362	98,270	188,632
58	1,817,564	5 60	11,680	50,402	62,082
59	3,916,802	12 50	603,116	1,083,724	1,686,840
60	835,768	4 81	25,034	59,945	84,979
61	1,685,653	4 15	1,940,752	411,255	2,352,007
62	2,227,392	10 46	152,869	206,020	358,889
63	607,587	3 13	10,113	62,998	73,112
64	2,567,521	7 70	41,177	68,048	109,225
65	4,046,[illegible]56	5 91	487,173	619,556	1,106,729
66	2,976,644	11 17	168,078	327,601	495,679
67	990,707	5 26	55,493	79,601	135,094
68	1,074,292	5 33	53,848	98,447	152,295
69	1,047,543	3 02	12,299	23,367	35,666
70	488,436	5 24	41,080	21,575	62,655
71	3,163,845	9 50	236,537	534,509	771,046
72	302,050	4 30	27,307	51,630	78,937
73	2,861,145	10 85	144,391	225,035	369,426
74	2,828,372	9 53	1,101,302	1,412,624	2,513,926
75	811,793	5 45	20,814	54,815	75,629
76	987,[illegible]95	4 86	67,984	46,195	114,179
77	4,348,041	11 00	1,280,384	1,651,223	2,931,607
78	3,031,111	7 85	107,000	165,303	272,303
79	867,353	4 58	69,142	77,232	146,373
	$150,494,105	$7 72	$59,727,114	$31,862,098	$92,444,065

STATEMENT "E"—Concluded.

	COUNTIES.	13. Total value of Real Property, as equalized by the State Board.	14. Total value of Real Property, as equalized by the County Board.	15. Total value o Real property as returned by the assessors.
1	Aitkin	$ 208,710	$ 208,710	$ 208,750
2	Anoka	1,232,480	1,232,481	1,178,030
3	Becker	910,326	910,326	870,007
4	Beltrami	99,141	99,141	99,141
5	Benton	656,530	597,425	518 389
6	Big Stone	523,788	523,788	500,822
7	Blue Earth	6,285,874	6,285,874	5,065,885
8	Brown	2,543,173	1,756,452	1,748,440
9	Carlton	487,939	487,939	466,628
10	Carver	2,942,934	2,942,934	2,194,423
11	Cass	1,127,879	1,127,879	1,127,879
12	Chippewa	931,246	856,733	668,140
13	Chisago	1,372,960	1,138,031	1,096,254
14	Clay	2,304,504	2,304,504	2,213,179
15	Cook	56,094	56,094	55,844
16	Cottonwood	828,874	828,874	815,253
17	Crow Wing	1,050,861	1,086,240	1,086,240
18	Dakota	5,245,676	5,030,899	3,440,874
19	Dodge	3,149,177	3,149,177	3,069,941
20	Douglas	2,099,694	2,099,694	1,691,872
21	Faribault	3,609,745	3,609,745	2,804,314
22	Fillmore	6,669 041	6,623,317	6,256,172
23	Freeborn	4,421,693	4,062,579	3,657,888
24	Goodhue	8,326,008	7,711,499	6,973,812
25	Grant	858,704	669,410	651,837
26	Hennepin	44,089,534	54,453,909	55,374,963
27	Houston	3,089,210	3,071,510	2,592,299
28	Isanti	595,915	595 915	536,787
29	Itasca	385,042	385,042	385,042
30	Jackson	845,196	845,196	840,054
31	Kanabec	580,959	581,959	573,435
32	Kandiyohi	2,478,357	1,896,010	1,816,992
33	Kittson	376,253	332,208	332,208
34	Lac qui Parle	1,131,815	984,967	954,392
35	Lake	226,475	226,475	226,475
36	La Sueur	2,942,730	2,818,788	2,050,193
37	Lincoln	288 865	288,865	288,927
38	Lyon	1,034,040	813,259	813,259
39	McLeod	2,495,855	2,097,114	1,911,559
40	Marshall	451,914	385,843	381,905
41	Martin	1,341 347	1,090,864	1,045,623
42	Meeker	2,623,779	2,182,196	2,050,314
43	Mille Lacs	496,297	295,244	294,344
44	Morrison	1,342,966	1,342,966	1,195,988
45	Mower	4,653,890	4,577,278	4,259,664
46	Murray	683,211	683,211	582,752
47	Nicollet	2,789 297	2,789,297	2,428,534
48	Nobles	982,385	906,035	818,905
49	Norman	930,777	785,521	691,811
50	Olmsted	6,800,839	6,800,839	6,795,708
51	Otter Tail	4,369,985	4,313,964	3,846,311
52	Pine	487,093	487,093	487,093
53	Pipestone	160,803	142,975	142,975
54	Polk	2,414,544	2,766 169	2,567,768
55	Pope	1,366,183	1,366,183	1,290,343
56	Ramsey	33,522,569	30,754,006	30,578 914
57	Redwood	1,553,947	1,280,884	1,271,429
58	Renville	1,879,646	1,360,342	1,300,321
59	Rice	5,603,642	5,603,642	4,988,436
60	Rock	920,747	720,153	706,596
61	Saint Louis	4,037,660	4,037,660	3,718,902
62	Scott	2,586,280	2,586,281	1,706,892
63	Sherburne	680,698	680,698	657,689
64	Sibley	2,676,746	2,676,746	1,655,674
65	Stearns	5,153,785	3,604,471	3,496,569
66	Steele	3,472,323	3,472,323	3,443,108
67	Stevens	1,125 802	842,742	824,488
68	Swift	1,026,587	1,011,729	972,359
69	Todd	1,083,209	1,047,543	970,386
70	Traverse	551,091	551,091	519,161
71	Wabasha	3,934,591	3,407,584	3,282 753
72	Wadena	380,987	380,987	366,164
73	Waseca	3 230,571	2,605,343	2,634,282
74	Washington	5,342,298	5,371,488	5,189,376
75	Watonwan	887,422	781,537	675,664
76	Wilkin	1,101,374	1,101,374	1,097,114
77	Winona	7,279,648	7,279 648	7,203,071
78	Wright	3,303,414	3,003,104	2,418,614
79	Yellow Medicine	1,013,726	725,185	772,158
	Totals	$242,938,170	$241,093,201	$226,466,347

STATEMENT "F"—Abstract of the Tax Lists of the Several Counties in the State of Minnesota for the Year 1881.

	COUNTIES.	Number of acres of land exclusive of t'wn lots.	Value of land (other than town lots) including structures thereon.	Average value per acre.	Value of town and city lots, including structures thereon.	Val'e of Taxable Personal property.
1	Aitkin	$ 56,115	$ 161,796	$ 2 88	$ 21,547	$ 33,695
2	Anoka	186,473	728 200	3 90	630,327	490,531
3	Becker	163,696	729,563	4 46	74,230	281,416
4	Beltrami	82,064	91,494	2 85	....	....
5	Benton	184,842	599,400	3 24	159,066	110,632
6	Big Stone	46,397	226,432	4 88	70,752	276,408
7	Blue Earth	460,291	4,933,768	10 72	1,290,709	1,417,379
8	Brown	297.056	1,999,915	6 73	468,852	721,567
9	Carlton	83,056	273,940	3 84	11,250	120,078
10	Carver	221,471	2,453,721	11 06	147.187	671,445
11	Cass	334,309	703,107	2 10	3,703	30,561
12	Chippewa	133,901	698,260	5 21	113,580	369,334
13	Chisago	235,990	1,188,371	5 03	265,549	345,499
14	Clay	228,998	1,353,812	5 91	....	555,609
15	Cook	13,061	19,592	1 50	....	635
16	Cottonwood	161,345	771,749	4 78	67,249	348,200
17	Crow Wing	32,287	107.596	3 33	171,163	138 861
18	Dakota	359,424	4,415,345	12 28	708,988	1,319.645
19	Dodge	275.119	2,968,608	10 79	364,755	817,2 9
20	Douglas	310,011	1,514,3 9	4 88	267,436	530,345
21	Faribault	407,094	3 064,072	7 52	399,308	819,607
22	Fillmore	541,896	5,964 634	11 00	788,521	1,814,458
23	Freeborn	399 590	3,916,876	9 80	452,3 6	859,323
24	Goodhue	486 993	6,784,853	13 93	2,058,3 7	2,387.668
25	Grant	153,485	644,842	4 20	27,961	208,113
26	Hennepin	340,636	10.884,020	22 60	20,482,194	9,797,612
27	Houston	340,645	2,928.464	8 59	392,989	1,073.200
28	Isanti	214,417	748.460	3 49	15,868	161,957
29	Itasca	130.617	254,859	1 95	....	....
30	Jackson	191,859	954,021	4 92	40,789	248.543
31	Kanabec	135,708	538,712	3 97	....	30.389
32	Kandiyohi	344,942	2,164.675	6 28	222,150	779,580
33	Kittson	37,367	119,772	3 20	57,923	100,374
34	Lac qui Parle	182,139	873,637	4 79	6,110	279 839
35	Lake	76.720	120,796	1 57	....	8,452
36	Le Sueur	276,649	2,452.050	8 86	311,616	704,455
37	Lincoln	42,461	207,976	4 89	31,917	180,043
38	Lyon	151,991	770,743	5 07	150,538	341,268
39	McLeod	288 887	2,150,086	7 44	242,252	643,026
40	Marshall	33,949	189,676	5 58	8,478	100,157
41	Martin	225,054	1,196,616	5 32	85,345	347.554
42	Meeker	319,508	2,235,293	7 00	292,793	649,913
43	Mille Lacs	142,182	441.056	3 09	45,484	56,061
44	Morrison	325,604	1.382,568	4 24	245,442	341.520
45	Mower	443,280	4 552.933	10 27	641,555	960,780
46	Murray	121.646	593,265	4 87	26,230	199,016
47	Nicollet	266.416	2,445,874	9 15	315,230	845,780
48	Nobles	176,037	844,985	4 82	123,159	270,056
4	Olmsted	417,316	5,751,743	13 78	1,277,274	1,857,896
50	Otter Tail	562,387	2,708,844	4 82	333,211	993,516
51	Pine	204,449	480,365	2 34	46.511	49,939
52	Pipestone	18,031	73,057	4 05	82,947	180,940
53	Polk	368,254	1,613,803	4 38	294,970	1,005,361
54	Pope	254,730	1,080,269	4 24	13,744	334 162
55	Ramsey	80,370	1,955,772	24 32	21,902,135	9,103 468
56	Redwood	252, 05	1,378,373	5 38	148,198	8 3,261
57	Renville	316,299	1,689.970	5 34	83,484	514,942
58	Rice	315 543	3,852,907	12 21	1,481,620	2,157,431
59	Rock	161,984	801,778	4 95	77, 82	225 708
60	St. Louis	297,700	761,525	2 56	720,832	325 584
61	Scott	215,626	2,177,605	10 09	327,911	796,488
62	Sherburne	190,190	563,846	3 07	48,9 8	22 ,363
63	Sibley	325,888	2,523,662	7 74	101,219	6 8, 75
64	Stearns	672,999	4.164.713	6 19	691,525	1,212,952
65	Steele	265,724	2,773,043	10 43	498,004	890, 91
66	Stevens	163.011	837,693	5 14	110,546	383,747
67	Swift	174,074	957,143	5 50	147.992	497, 96
68	Todd	328,591	1,068,2 3	3 25	13,7 7	221 501
69	Traverse	54,770	239,450	4 55	40,388	142,131
70	Wabasha	333,8 7	3,514, 48	10 53	1,008,838	1,0 9,086
71	Wadena	66,170	241,261	3 69	54,514	14 77
72	Waseca	263 498	2,697,362	10 24	362,5 4	661, 11
73	Washington	246,909	2,877.708	11 65	1,9 5.828	1,770.771
74	Watonwan	148.739	788,063	5 30	59,777	286, 45
75	Wilkin	162, 96	712.357	4 38	74,490	237.1 9
76	Winona	391,276	4.198,872	10 70	2,816,2 0	2,14 .952
77	Wright	383,357	2,899,081	7 56	228, 72	683 563
78	Yellow Medicine	181,008	841,759	4 65	113,713	331,877
	Totals	$18,430,789	$141,572.497	$ 7 68	$67,376,687	$62,209,777

STATEMENT

	COUNTIES.	Total Value.	Av. Rate of tax'n Mills	Total Taxes Levied.	STATE TAXES	
					Revenue, State institutions, interest, sinking & Forestry funds.	Seed Grain.
1	Aitkin	$ 217, 38	28.1	$ 6,340 91	$ 303 86	....
2	Anoka	1,849,058	20 0	37,664 06	2,594 07	....
3	Becker	1,085,209	20.2	21,977 12	1,519 23	$ 40 15
4	Beltrami	91,494	2 5	228 63	128 91	....
5	Benton	869,088	25 1	22,810 32	1,216 82	....
6	Big Stone	573,592	31.3	18,238 45	802 97	....
7	Blue Earth	7,641,916	17 6	134,232 46	10,698 28	307 50
8	Brown	3,190,334	19.3	61,591 37	4,466 48	2,253 51
9	Carlton	405,268	25 0	8,893 14	564 55	....
10	Carver	3,272,353	11.9	37,246 71	4,581 24	....
11	Cass	737,371	12 0	8,848 86	1,032 37	....
12	Chippewa	1,181,174	22 1	26,174 55	1,654 05	2,628 67
13	Chisago	1,799,419	12 4	22,280 74	2,519 18	....
14	Clay	1,900,421	34.4	65,712 94	2,688 30	....
15	Cook	20,227	7 9	159 88	28 33	....
16	Cottonwood	1,187,198	18 3	22,976 48	1,664 84	....
17	Crow Wing	417,620	32.4	13,527 64	584 67	....
18	Dakota	6,443,978	14 3	92,414 69	9,021 45	....
19	Dodge	4,150,602	12.3	51,007 70	5,812 94	....
20	Douglas	2,332,100	16.4	38,306 60	3,264 62	1,012 45
21	Faribault	4,282,987	17 1	73,311 66	5,998 41	....
22	Fillmore	8,567,413	11.3	97,148 76	11,999 58	....
23	Freeborn	5,248,555	12 1	76,615 64	7,331 94	....
24	Goodhue	11,230,853	12.7	142,920 93	15,723 18	....
25	Grant	889,916	19 6	19,902 97	1,233 31	1,020 02
26	Hennepin	41,163,826	20 0	827,210 16	57,629 35	....
27	Houston	4,384,653	8.8	38,633 93	6,138 75	....
28	Isanti	926,275	15.3	14,163 61	1,295 88	....
29	Itasca	254,859	8.0	2,038 87	356 80	....
30	Jackson	1,243,353	21 8	30,140 47	1,740 64	3,060 76
31	Kanabec	560,101	13.6	7,742 97	798 74	....
32	Kandiyohi	3,165,405	10.6	54,597 17	4,432 96	18,371 71
33	Kittson	278,039	22.1	6,142 11	389 14	....
34	Lac qui Parle	1,159,586	....	18,639 26	1,616 39	353 40
35	Lake	120,248	12.5	1,614 30	180 80	....
36	Le Sueur	3,468,151	21.7	75,443 70	4,873 84	....
37	Lincoln	419,933	24 4	10,268 87	583 30	....
38	Lyon	1,252,549	25 9	32,653 96	1,767 48	....
39	McLeod	3,035,364	13 0	39,724 15	4,219 53	110 00
40	Marshall	298,306	24.4	7,343 26	417 53	....
41	Martin	1,629,515	16.0	32,270 92	2,281 29	....
42	Meeker	3,177,909	14 8	47,166 00	4,449 20	417 68
43	Mille Lacs	542,601	23 3	12,634 54	759 61	....
44	Morrison	1,960,530	22.7	38,463 07	2,740 00	....
45	Mower	6,155,288	14 8	91,362 44	8,617 32	....
46	Murray	818,511	21 6	19,554 19	1,145 92	....
47	Nicollet	3,605,8 4	11 2	56,872 11	5,049 64	260 90
48	Nobles	1,238,200	23.2	31,447 57	1,733 48	2,763 21
49	Olmsted	8,885,913	11.1	98,905 43	12,411 63	....
50	Otter Tail	4,035,571	21 9	85,145 39	5,649 10	....
51	Pine	576,815	33.8	19,523 19	807 54	....
52	Pipestone	286,944	34 0	9,757 25	402 52	....
53	Polk	2,914,114	22.0	64,051 04	4,092 42	....
54	Pope	1,428,175	22 5	29,303 84	1,998 14	1,713 36
55	Ramsey	32,931,375	17.3	569,458 01	46,145 96	....
56	Redwood	1,829,832	14 8	37,203 92	2,561 70	....
57	Renville	2,288,305	25 1	59,031 81	3,203 73	17,772 12
58	Rice	7,491,058	14.7	109,826 98	10,488 72	....
59	Rock	1,105,068	24.8	27,443 05	1,547 15	....
60	Saint Louis	1,807,941	27 0	50,041 96	2,531 11	....
61	Scott	3,302,004	14 9	49,375 37	4,622 76	....
62	Sherburne	835,137	22.9	19,355 34	1,170 58	....
63	Sibley	3,273,158	13 6	44,773 26	4,582 44	....
64	Stearns	6,058,100	14.8	89,422 81	8,495 47	....
65	Steele	4,161,328	15.7	65,415 61	5,825 87	....
66	Stevens	1,331,982	24 4	28,585 84	1,887 50	1,332 91
67	Swift	1,602,431	22.1	35,456 74	2,215 28	3,143 24
68	Todd	1,303,481	23 0	29,987 71	1,824 87	....
69	Traverse	421,969	19 3	8,234 36	591 17	....
70	Wabasha	5,562,372	18 0	100,071 03	7,787 28	....
71	Wadena	443,352	26 9	11,931 68	635 97	....
72	Waseca	3,721,377	16 1	59,953 05	5, 08 42	....
73	Washington	6,624,397	18.7	123,850 35	9,274 01	....
74	Watonwan	1,134,045	17 3	19,599 16	1,587 69	....
75	Wilkin	1,023,976	21.4	21,913 61	1,433 60	....
76	Winona	9,161,064	14 8	135,412 87	12,825 75	....
77	Wright	3,810,916	18.1	69,234 41	5,333 23	....
78	Yellow Medicine	1,257,349	22 9	29,475 74	1,892 27	....
	Totals	$271,158,9[illegible]	17 3	$1,8[illegible]	[illegible]	[illegible]

"F"—Continued.

	SCHOOL TAXES		COUNTY TAXES.			
	General. (1 mill tax.)	Special.	Revenue.	Interest.	Poor.	Other special Taxes.
1	$ 217 03	....	$ 2,170 38	$ 1,085 19	$ 651 11	$ 1,519 26
2	1,835 73	$ 13,577 69	6,016 81	1,478 45	2,553 87	....
3	1,064 67	6,320 25	4,883 25	2,170 31	759 62	....
4	....	....	99 72	....	....	....
5	869 07	3,570 26	3,128 41	1,998 91	477 99	4,485 80
6	573 53	7,549 31	4,932 76	....	286 75	....
7	7,641 90	30,716 09	19,104 75	....	4,585 14	16,812 18
8	3,190 31	18,798 92	11,166 18	2,552 26	3,190 31	5,104 54
9	403 28	2,154 88	2,857 12	201 64	403 31	806 54
10	3,272 30	11,572 88	6,871 80	....	....	....
11	737 41	....	4,836 87	2,212 21	....	....
12	1,121 11	9,028 42	6,612 16	....	572 32	....
13	1,799 41	7,878 79	....	....	....	....
14	1,920 44	18,269 91	9,600 98	2,880 60	1,920 44	3,840 16
15	....	....	131 55	....	....	....
16	1,189 75	7,763 11	5,349 33	....	1,189 73	1,787 35
17	417 61	4,791 77	1,670 48	2,088 11	835 24	3,132 16
18	6,443 98	25,363 10	18,043 76	5,155 15	1,933 10	644 39
19	4,155 58	19,097 41	4,152 11	....	4,152 13	....
20	2,332 06	11,163 20	9,095 28	....	932 77	....
21	4,289 10	21,252 13	11,876 26	....	1,071 06	3,663 28
22	8,576 80	30,045 17	17,161 90	....	4,238 41	....
23	5,238 84	22,286 68	20,950 51	....	....	....
24	11,230 83	36,840 92	34,913 89	....	....	....
25	880 91	4,551 39	5,285 68	....	880 91	2,202 28
26	41,163 83	145,041 25	90,510 42	....	....	....
27	4,394 22	16,677 36	10,089 37	....	....	....
28	925 35	8,617 76	4,106 43	1,000 48	500 27	....
29	....	....	1,682 07	....	....	....
30	1,244 07	8,909 10	6,217 34	1,864 89	8,700 00	1,243 29
31	560 43	173 94	3,414 60	....	287 67	2,569 95
32	3,166 00	11,778 01	9,815 84	....	791 63	....
33	279 28	1,274 71	2,780 56	....	....	....
34	1,160 14	4,380 93	4,076 46	347 38	347 38	2,656 12
35	129 24	64 57	819 44	....	....	....
36	3,483 96	18,836 18	32,728 52	....	3,829 60	....
37	420 34	3,253 17	3,609 03	....	186 80	878 68
38	1,264 35	12,165 92	6,312 33	2,524 76	2,524 76	....
39	3,035 45	12,872 06	7,900 02	....	1,517 72	1,517 72
40	167 94	1,178 18	2,982 08	596 65	298 73	900 49
41	1,620 46	11,122 89	8,163 81	814 84	1,619 46	....
42	3,178 00	17,549 50	10,487 37	....	1,906 81	....
43	512 60	175 00	4,991 92	....	1,465 03	....
44	1,964 49	7,584 31	9,867 50	....	....	8,988 02
45	6,155 29	31,174 92	24,620 95	....	....	....
46	818 60	5,652 24	6,138 89	980 68	980 73	572 70
47	3,606 90	11,728 23	18,031 42	1,803 44	2,164 14	1,803 44
48	1,238 24	10,281 16	6,191 59	1,981 12	866 77	1,362 10
49	8,886 87	80,206 21	19,151 93	....	4,443 46	....
50	4,042 65	26,794 40	18,915 45	4,963 40	7,745 82	....
51	576 81	3,908 76	5,117 99	3,980 01	980 58	2,018 85
52	290 46	4,184 10	2,870 32	....	400 83	....
53	2,923 76	14,401 59	14,621 69	5,846 88	5,846 88	....
54	1,450 51	8,884 90	7,136 19	2,907 19	478 15	....
55	32,961 37	127,465 13	51,133 35	14,832 04	11,536 48	4,944 25
56	1,820 87	10,472 76	8,417 86	3,659 73	1,097 97	1,463 89
57	2,288 40	14,281 85	11,411 98	....	2,288 40	....
58	7,491 92	31,929 25	20,228 33	5,944 34	8,241 14	....
59	1,105 06	7,181 55	4,973 02	6,409 58	1,547 15	552 56
60	1,807 94	11,499 72	9,139 81	6,508 56	1,807 93	1,807 93
61	3,312 00	12,812 43	13,218 63	....	3,312 00	....
62	836 10	6,378 17	4,180 67	....	836 10	836 10
63	3,273 15	8,029 41	14,411 84	654 62	....	1,636 58
64	6,068 20	34,816 66	12,136 35	....	....	....
65	4,161 34	17,163 83	17,161 47	....	4,161 34	2,704 88
66	1,348 33	9,069 11	7,741 95	1,078 59	1,348 33	....
67	1,618 76	10,161 55	7,137 42	1,283 11	1,283 11	1,603 95
68	1,303 18	10,705 56	5,213 92	....	....	....
69	422 77	1,753 55	3,373 73	....	212 44	421 55
70	5,562 34	25,173 73	22,241 48	....	5,562 34	5,562 34
71	412 01	3,619 26	4,187 61	452 01	413 18	....
72	3,722 64	19,230 18	12,173 31	....	2,504 38	2,504 38
73	6,624 31	32,103 60	23,817 49	3,974 59	9,291 01	....
74	1,134 07	5,014 08	6,137 81	....	679 67	1,700 89
75	1,034 29	6,631 91	5,140 73	819 23	1,536 00	2,335 23
76	9,161 16	24,118 32	32,161 51	....	8,141 38	....
77	3,810 89	18,872 89	18,712 07	2,667 51	....	....
78	1,287 33	8,513 52	6,436 79	772 40	3,862 01	....
	[illegible]	[illegible]	[illegible]	$90,881 43	$110,116 77	$91,039 78

STATEMENT "F."—Concluded.

	COUNTIES.	TOWN TAXES.				
		City.	Township.	Delinquent Road.	Interest on Railroad Bonds.	Other Special Taxes.
1	Aitkin	$	$ 434 08	$	$	$
2	Anoka	5,848 49	1,827 05	1,597 45		274 46
3	Becker		2,036 13	960 83		2,202 67
4	Beltrami					
5	Benton		3,609 52	942 51		2,510 73
6	Big Stone	1 503 11	2,547 16	40 86		
7	Blue Earth	24,996 35	8,389 36	5,351 67	4,501 08	1,128 16
8	Brown	4,700 13	2,222 24	2,479 12		1,467 37
9	Carlton		1,491 86			
10	Carver	717 73	4,978 11	702 29	340 55	4,249 72
11	Cass					
12	Chippewa		2,924 94	1,402 81		331 07
13	Chisago	980 95	2.013 20	2,873 55	2,580 19	1.614 47
14	Clay	6,399 70	6,620 00	761 61		10,810 80
15	Cook					
16	Cottonwood		1,755 71	1.071 90		1,204 74
17	Crow Wing					
18	Dakota	16,451 86	4,725 14	1,889 92		2 742 84
19	Dodge	487 44	3.441 88	2,757 47		6,935 34
20	Douglas		5,089 36	2,981 57	303 45	129 84
21	Faribault	747 66	6,371 94	5,307 39	11.604 52	149 91
22	Fillmore	800 65	6.311 88	3,641 82	10,611 95	3.710 51
23	Freeborn	2,029 50	2,644 94	3,063 79	6.650 84	6,418 60
24	Goodhue	19,861 32	14,475 81	2,117 97	6,036 74	1,720 26
25	Grant		2,638 89	1,597 58		
26	Hennepin	327,479 11	8,817 63	4.680 61		150,937 96
27	Houston		4,320 67	2,095 27	891 40	26 89
28	Isanti		1,313 25	1,270 98		201 51
29	Itasca					
30	Jackson		2,426 46	2,078 09		494 69
31	Kanabec					
32	Kandiyohi	176 27	3,372 02	2,673 43		18 87
33	Kittson	433 17	391 85	33 84		559 84
34	Lac qui Parle		2,065 68	1,655 33		
35	Lake		129 14	271 21		
36	Le Sueur		7,751 48	1,216 93		2.728 91
37	Lincoln		1,203 16	76 99		525 88
38	Lyon	785 71	2,150 30	1.209 54		1,948 84
39	McLeod		3,618 78	1,902 40		2,999 94
40	Martin		464 22	99 82		197 62
41	Marshall	120 67	2,038 16	2,985 27		1.476 08
42	Meeker	1,145 07	2.603 79	3.107 10		2,321 48
43	Mille Lacs		3,189 48	1,529 86		
44	Morrison		4.335 23			8,048 48
45	Mower	3,593 91	10.610 75	6,042 62	864 78	151 90
46	Murray		1.928 73	673 17		762 53
47	Nicollet	3,190 45	2,714 24	1.917 64	1,750 00	2.848 67
48	Nobles		2,481 73	2,053 53		494 84
49	Olmsted	5,926 35	5,536 63	2,158 61	2,109 48	7,644 96
50	Otter Tail	2,517 58	6,063 86	8.267 87		835 86
51	Pine		825 75	2,3.6 90		
52	Pipe Stone		866 31	82 35		761 86
23	Polk	1,166 51	5,725 69	508 14		8,910 48
54	Pope		3,092 01	1,626 30		
55	Ramsey	270,136 86	2,451 12	7.840 82		
56	Redwood	1,8 6 78	2,712 82	2,644 40		626 11
57	Renville	159 96	5,573 90	2,051 50		
58	Rice	15,707 49	8,153 22	1,931 06		711 51
59	Rock	269 01	1,517 60	1,269 06		1,071 81
60	St. Louis	3,514 11	7.802 67	1,278 96		2,443 22
61	Scott	213 35	2,945 99	867 92	4.157 19	8,908 10
62	Sherburne	642 34	1.668 56	690 96	2,115 78	
63	Sibley	1,018 63	9,312 26	1,864 30		
64	Stearns	8,754 65	12,866 38	5,463 56	285 37	586 14
65	Steele	2,646 92	2,8.1 94	2,048 80		6.889 22
66	Stevens		2.883 48	2,050 34		795 17
67	Swift	1,362 70	2.300 52	1,046 57	134 44	1,431 09
68	Todd		7,060 78	3,879 10		
69	Traverse		734 97			724 18
70	Wabasha		18.504 80	2,114 68	7,148 69	105 85
71	Wadena		1.596 29	575 36		
72	Waseca	536 21	2,667 98	3,128 17	4,824 47	3.554 62
73	Washington	29,805 15	3.149 18	3.103 11		2,704 99
74	Watonwan		2,028 32	1,186 63		
75	Wilkin		2,953 65			
76	Winona	38,430 52	5,127 69	2.391 93		2,927 61
77	Wright	327 39	8,488 04	3.247 22	6,213 70	1,568 44
78	Yellow Medicine		5,020 42	1,778 28		
	Totals	$817,393 76	$297.018 78	$146 420 64	$72,624 62	$271,50 5

STATEMENT "G."—Abstract of the Tax List of the several Counties in the State of Minnesota for the year 1882.

	COUNTIES.	No. of acres of land exclusive of town lots.	Value of land (other than town lots) including structures thereon.	Average value per acre.	Value of town and city lots including structures thereon.	Value of taxable personal property.
1	Aitkin	67,032	$180,550	$ 2 69	$ 28,155	$ 39,270
2	Anoka	194,206	661,354	3 46	580,563	536,868
3	Becker	181,761	801,672	4 41	115,546	342,622
4	Beltrami	36,757	99,461	2 71	....	....
5	Benton	186,781	510,910	2 73	149,350	104,314
6	Big Stone	78,609	409,603	5 21	108,947	295,497
7	Blue Earth	457,733	4,941,469	10 79	1,349,693	1,408,184
8	Brown	301,451	2,102,421	7 30	449,755	665,351
9	Carlton	101,045	465,782	6 17	22,745	155,956
10	Carver	221,395	2,748,414	12 41	195,059	748,107
11	Cass	362,575	1,038,071	2 86	....	42,131
12	Chippewa	155,523	822,465	5 28	109,940	370,002
13	Chisago	238,107	1,155,172	4 85	217,240	406,827
14	Clay	268,971	1,486,547	5 52	844,644	759,036
15	Cook	22,321	56,003	2 51	....	....
16	Cottonwood	169,736	755,260	4 56	78,821	334,255
17	Crow Wing	35,418	145,874	6 26	913,865	334,157
18	Dakota	360,978	4,526,932	12 54	735,313	1,605,840
19	Dodge	274,020	2,873,608	10 48	286,769	734,305
20	Douglas	318,937	1,757,370	5 50	341,586	704,643
21	Faribault	426,125	3,218,995	7 55	392,113	819,350
22	Fillmore	543,153	5,883,877	10 83	770,475	1,730,929
23	Freeborn	397,359	4,013,830	10 00	467,775	928,858
24	Goodhue	487,262	6,733,946	13 82	1,568,330	2,359,853
25	Grant	163,539	821,152	5 02	38,452	259,573
26	Hennepin	338,301	13,195,175	28 32	31,187,175	10,911,949
27	Houston	343,040	2,717,644	7 92	371,779	1,014,584
28	Isanti	219,341	587,265	2 67	10,290	188,682
29	Itasca	143,623	387,368	2 69	....	11,318
30	Jackson	196,969	800,645	4 06	77,688	243,553
31	Kanabec	143,917	573,435	4 04	....	23,565
32	Kandiyohi	357,968	2,251,137	6 29	233,030	801,230
33	Kittson	60,682	215,671	3 55	154,976	137,120
34	Lac qui Parle	233,837	1,119,315	4 79	5,970	521,283
35	Lake	89,397	226,445	2 53	....	4,676
36	Le Sueur	277,014	2,493,535	9 00	386,060	711,412
37	Lincoln	55,457	231,464	4 17	50,543	194,803
38	Lyon	168,614	848,689	5 17	184,628	353,798
39	McLeod	292,250	2,265,175	7 75	247,682	681,598
40	Marshall	74,661	393,372	5 26	54,590	126,728
41	Martin	232,482	1,259,885	5 44	88,938	331,173
42	Meeker	331,201	2,310,528	6 97	312,773	649,436
43	Mille Lacs	197,412	416,418	2 10	79,875	74,137
44	Morrison	290,123	1,201,224	4 14	141,742	299,325
45	Mower	448,755	4,161,050	9 40	674,416	962,186
46	Murray	150,166	638,691	4 20	37,193	205,448
47	Nicollet	268,148	2,430,892	9 06	349,883	847,726
48	Nobles	192,292	847,617	4 41	148,590	269,853
49	Norman	188,883	883,588	4 68	64,155	423,726
50	Olmsted	418,588	5,587,343	13 35	1,217,111	1,795,330
51	Otter Tail	607,010	3,441,462	5 67	1,499,782	1,396,321
52	Pine	229,810	430,853	1 87	56,240	83,099
53	Pipestone	28,074	129,993	4 63	48 8 9	190,257
54	Polk	368,552	1,880,744	5 10	683,877	1,245,186
55	Pope	268,397	1,331,308	4 96	36,055	391,751
56	Ramsey	82,859	2,537,005	30 61	30,869,622	10,078,014
57	Redwood	263,650	1,392,147	5 28	142,011	331,400
58	Renville	353,107	1,863,014	5 56	59,646	516,566
59	Rice	315,065	3,896,808	12 40	1,497,083	1,927,735
60	Rock	173,424	835,827	4 82	85,144	262,066
61	St. Louis	404,680	1,690,262	4 17	2,352,737	457,477
62	Scott	216,810	2,227,048	10 27	359,047	720,011
63	Sherburne	191,811	611,293	3 18	73,111	213,300
64	Sibley	332,855	2,566,012	7 71	110,271	694,829
65	Stearns	683,805	4,049,109	5 92	1,103,791	1,376,692
66	Steele	266,360	2,968,373	11 15	496,397	983,614
67	Stevens	185,169	937,177	5 06	141,295	377,951
68	Swift	204,951	1,081,375	5 27	155,627	464,490
69	Todd	344,665	1,033,449	3 00	35,790	219,609
70	Traverse	90,614	487,690	5 38	65,785	170,133
71	Wabasha	332,941	3,163,652	9 50	772,518	950,947
72	Wadena	70,814	303,361	4 30	78,088	191,613
73	Waseca	263,593	2,860,240	10 85	369,912	674,519
74	Washington	247,796	2,825,142	11 40	2,514,951	2,119,592
75	Watonwan	148,668	808,608	5 43	75,629	297,659
76	Wilkin	197,173	1,016,367	5 15	111,725	274,991
77	Winona	394,680	4,187,290	10 61	3,108,989	2,137,095
78	Wright	386,142	3,179,960	8 23	272,449	710,284
79	Yellow Medicine	190,636	876,713	4 59	146,562	341,695
	Totals	$19,608,026	$150,866,621	$7 89	$93,167,226	$67,159,588

STATEMENT

	COUNTIES.	Total Value.	Average rate of taxation.	Total Taxes levied.	STATE TAXES.	
			Mills.		Revenue & Forestry Funds.	Seed Grain.
1	Aitkin	$ 247,975	25 4	$ 6,295 79	$ 272 76	....
2	Anoka	1,778,785	21.7	38,924 05	1,957 57	....
3	Becker	1,259,840	22.7	28,555 79	1,386 38	$ 11 15
4	Beltrami	99,461	3	298 48	109 44	....
5	Benton	764,574	23 5	17,626 77	841 05	....
6	Big Stone	814,047	28 3	24,281 60	895 41	....
7	Blue Earth	7,699,346	16.5	127,995 95	8,469 23	2,00 00
8	Brown	3,217,527	19 5	62,937 45	3,539 27	24 59
9	Carlton	644,483	23 9	15,407 59	702 29	....
10	Carver	3,691,580	11 5	42,488 26	4,060 73	....
11	Cass	1,080,202	10	10,802 01	1,188 22	....
12	Chippewa	1,302,407	21.5	27,423 48	1,431 72	....
13	Chisago	1,779,239	13.4	23,830 10	1,957 16	....
14	Clay	3,090,227	32 6	100,808 73	3,399 25	....
15	Cook	56,094	5.1	286 06	61 70	....
16	Cottonwood	1,168,336	19.2	22,443 08	1,285 60	....
17	Crow Wing	1,393,896	19 9	27,786 31	1,533 28	....
18	Dakota	6,868,085	13.8	95,046 55	7,554 91	....
19	Dodge	3,894,682	11.5	44,860 18	4,274 87	....
20	Douglas	2,803,590	16.2	45,437 65	3,083 94	....
21	Faribault	4,430,458	16 4	72,804 12	4,875 46	....
22	Fillmore	8,385,281	10.3	86,924 64	9,243 95	....
23	Freeborn	5,410,463	15.4	81,354 89	6,000 59	....
24	Goodhue	10,662,129	13 4	142,914 83	11,737 42	....
25	Grant	1,119,177	19.3	22,402 83	1,231 93	771 17
26	Hennepin	55,294,299	21.9	1,212,569 68	60,823 73	....
27	Houston	4,104,007	8.9	46,083 43	4,514 70	....
28	Isanti	786,237	20.5	15,893 90	864 92	....
29	Itasca	398,681	6	2,392 08	438 55	....
30	Jackson	1,121,886	22.3	24,991 62	1,234 07	....
31	Kanabec	597,000	13	7,878 60	656 70	....
32	Kandiyohi	3,285,397	11.1	48,458 57	3,613 89	8,534 24
33	Kittson	507,767	22.8	11,558 03	558 44	....
34	Lac qui Parle	1,616,568	14.1	23,254 83	1,811 22	120 62
35	Lake	231,121	8.9	2,058 74	254 45	....
36	Le Sueur	3,591,007	20	71,904 16	3,950 07	....
37	Lincoln	476,810	27 3	13,057 09	526 79	....
38	Lyon	1,387,115	26.1	36,221 71	1,525 72	....
39	McLeod	3,194,455	16	51,482 70	3,514 10	....
40	Marshall	574,690	24.8	14,300 16	632 15	....
41	Martin	1,679,996	21	34,457 71	1,850 04	....
42	Meeker	3,272,737	14.4	47,274 73	3,600 01	....
43	Mille Lacs	570,430	19	10,879 86	627 45	....
44	Morrison	1,612,291	20.1	34,589 62	1,798 52	....
45	Mower	5,797,652	15.8	91,725 47	6,377 41	....
46	Murray	881,332	28.3	24,280 10	969 79	....
47	Nicollet	3,628,501	13	47,086 73	3,991 37	....
48	Nobles	1,266,060	27.4	34,623 23	1,392 66	....
49	Norman	1,371,469	18	25,025 55	1,508 53	....
50	Olmstead	8,599,784	12.1	104,594 05	9,459 75	....
51	Otter Tail	6,337,565	19.6	178,821 48	6,971 32	40 78
52	Pine	570,192	26 1	15,342 67	627 49	....
53	Pipestone	369,169	36.5	13,311 23	405 90	....
54	Polk	3,809,807	23	87,884 14	4,191 16	....
55	Pope	1,759,114	19.9	35,016 00	1,935 41	....
56	Ramsey	43,484,641	19 9	868,679 42	47,833 13	....
57	Redwood	1,865,758	19.2	39,527 02	2,052 11	....
58	Renville	2,439,226	17	43,022 94	2,683 13	....
59	Rice	7,321,626	15.7	115,004 15	8,053 78	....
60	Rock	1,183,037	26.5	31,432 36	1,302 01	....
61	St. Louis	4,500,476	22	94,387 27	4,950 50	....
62	Scott	3,306,106	16.1	53,228 71	3,636 71	....
63	Sherburne	897,704	22	20,345 58	987 45	....
64	Sibley	3,281,142	14.7	48,420 37	3,608 99	....
65	Stearns	6,509,592	16 1	104,718 52	7,160 70	....
66	Steele	4,448,414	13.6	60,011 33	4,893 25	....
67	Stevens	1,446,423	22	33,020 30	1,590 50	1,182 34
68	Swift	1,701,492	21	35,854 78	1,873 40	2,267 13
69	Todd	1,288,848	22	28,747 75	1,417 72	....
70	Traverse	723,608	27 2	17,319 50	797 34	....
71	Wabasha	4,887,137	20 6	100,943 33	5,375 84	....
72	Wadena	573,062	23	17,197 52	631 34	....
73	Waseca	3,904,701	15 1	58,981 39	4,295 17	....
74	Washington	7,459,685	19.1	142,173 10	8,205 65	....
75	Watonwan	1,181,896	16 6	19,635 49	1,300 08	....
76	Wilkin	1,405,083	20 9	29,391 00	1,545 70	....
77	Winona	9,433,374	16 5	156,138 42	10,376 71	....
78	Wright	4,162,693	16 5	68,811 83	4,578 97	....
79	Yellow Medicine	1,361,970	23.2	31,619 52	1,505 17	30 50
	Totals	$311,193,435	18.5	$5,755,765 06	$342,375 79	$13,191 52

"G."—Continued.

	SCHOOL TAXES.		COUNTY TAXES.			
	General. (1 Mill Tax.)	Special.	Revenue.	Interest.	Poor.	Other Special Taxes
1	$ 247 97	$ 860 45	$ 2,140 16	....	$ 533 13	$2,241 82
2	1,781 51	12,765 15	7,564 59	$ 1,781 05	2,2 6 72	....
3	1,208 55	9,277 13	6,301 22	3,024 69	1,512 31	....
4	....	....	189 04	....	....	....
5	764 62	3,179 82	4,312 20	2,019 51	....	1,009 27
6	813 99	12,755 52	3,581 77	....	569 80	1,058 27
7	7,699 38	35,833 91	16,168 56	1,539 73	7,699 37	15,398 73
8	3,217 51	23,987 50	19,009 08	1,287 02	4,182 78	5,148 62
9	638 21	2,762 91	15,752 97	....	510 72	1,657 33
10	3,691 60	11,551 78	8,859 77	....	....	....
11	1,080 20	....	5,292 99	3,240 60	....	....
12	1,262 87	10,488 13	7,028 45	....	1,561 89	782 05
13	1,779 23	6,678 22	11,957 16	....	1,957 16	....
14	2,996 57	24,097 90	15,451 24	7,725 76	6,181 32	10,158 35
15	....	....	224 36	....	....	....
16	1,170 54	7,897 91	5,026 07	....	1,170 54	1,521 70
17	1,393 90	5,932 86	6,830 08	5,575 58	1,393 90	1,393 90
18	6,868 08	28,524 85	19,916 99	....	2,060 42	686 81
19	3,886 12	17,509 04	3,886 23	....	3,895 26	....
20	2,803 60	16,039 72	10,652 5	....	4,204 08	....
21	4,437 08	21,476 75	13,296 93	2,216 17	2,216 18	....
22	8,403 54	32,328 12	10,084 23	....	2,521 06	....
23	5,392 60	24,051 76	22,911 39	....	....	....
24	10,670 32	34,403 82	34,145 12	....	....	....
25	1,119 80	7,407 13	5,039 30	....	1,567 87	....
26	53,294 30	101,459 59	110,588 60	....	....	....
27	4,110 66	11,545 38	17, 38 15	....	....	....
28	786 30	4,634 74	4,832 49	1,501 77	495 40	....
29	....	....	1,953 53	....	....	....
30	1,123 93	7,604 87	5,611 42	1,907 20	807 42	1,234 07
31	597 00	356 40	3,283 50	....	293 50	....
32	8,285 41	13,776 37	9,856 17	....	985 62	....
33	508 20	2,074 33	5,078 31	....	....	....
34	1,463 53	7,131 40	5,554 69	....	977 49	1,757 64
35	231 32	185 06	994 67	....	....	....
36	3,590 93	20,993 87	28,727 91	....	....	....
37	479 18	4,809 17	4,768 18	246 64	....	....
38	1,387 60	14,120 46	6,935 25	1,386 86	2,773 72	2,183 76
39	8,194 45	14,088 13	15,658 90	....	1,118 13	2,076 42
40	360 23	2,340 30	5,746 90	1,149 37	574 70	574 70
41	1,680 04	12,811 03	8,403 84	840 14	1,680 04	840 14
42	3,272 73	16,247 52	12,109 12	....	2,945 46	....
43	570 43	3,130 00	1,483 11	....	....	....
44	1,642 22	9,233 60	8,179 66	....	....	3,774 81
45	5,797 66	27,780 32	33,692 37	....	....	....
46	882 15	7,459 60	8, 84 70	881 54	793 32	705 16
47	3,628 52	10,274 76	17,779 68	....	....	....
48	1,266 07	12,141 87	6,335 38	2,661 11	896 85	2,785 20
49	1,371 60	6,776 89	5,684 32	1,069 98	2,154 23	1,695 97
50	8,590 76	33,341 54	19,779 49	....	3,439 92	....
51	6,337 62	37,365 05	28,681 20	10,833 23	8,018 71	54,539 46
52	570 18	1,579 70	4,276 48	1,993 66	513 18	1,995 66
53	364 94	5,152 62	8,651 69	....	364 84	363 41
54	3,810 20	20,669 41	19,051 53	5,715 13	3,810 20	....
55	1,763 24	8,206 18	8,799 84	7,921 92	527 83	....
56	43,481 65	167,857 12	97,889 97	13,045 39	10,871 18	4,348 48
57	1,865 58	12,471 63	8,021 86	3,514 51	1,305 89	2,052 10
58	2,439 22	14,638 65	12,196 13	....	2,499 22	....
59	7,321 61	31,097 01	10,982 82	8,783 96	9,518 11	....
60	1,183 62	9,437 25	4,970 93	6,036 44	1,533 71	2,012 16
61	4,500 43	21,594 90	15,301 68	6,750 70	4,500 46	11,251 16
62	3,306 11	11,168 57	16,532 13	....	1,653 03	3,306 11
63	897 68	6,177 24	4,937 85	....	807 93	807 93
64	3,281 13	8,709 03	14,7 4 63	656 21	....	....
65	6,509 56	41,017 87	20,179 94	....	1,832 37	....
66	4,448 41	18,787 14	12,010 66	....	5,115 67	3,113 86
67	1,466 27	10,971 55	7,285 74	1,018 58	2,910 03	....
68	1,719 93	11,685 09	7,152 92	1,192 22	1,192 22	1,703 29
69	1,288 86	10,776 05	6,414 32	....	....	....
70	729 44	5,426 50	5,807 96	....	725 91	725 91
71	4,887 14	28,867 17	20,526 00	....	6,353 93	6,353 93
72	574 19	6,079 18	3,893 64	515 78	802 83	1,748 90
73	3,904 64	18,998 96	12,103 68	....	2,694 05	4,724 37
74	7,459 78	32,363 85	22,379 04	....	8,952 59	....
75	1,181 89	6,130 94	6,500 48	590 94	827 33	....
76	1,406 82	7,286 98	7,025 84	2,107 56	1,545 70	2,669 95
77	9,433 29	27,018 11	40,091 71	....	8,020 14	4,716 07
78	4,162 71	22,131 98	16,650 78	1,248 81	....	....
79	1,369 32	10,449 34	6,826 15	1,090 75	4,504 39	....
	$310,119 99	$1,398,233 54	$1,019,053 00	$113,108 54	$157,412 78	$165,066 32

STATEMENT "G."—Concluded.

	COUNTIES.	CITY AND TOWN TAXES.				
		City.	Township.	Delinquent Road.	Interest on R. R. Bonds.	Other special Taxes
1	Aitkin					
2	Anoka	$ 6,711 31	$ 1,461 14	$ 1,530 21		$ 1,144 80
3	Becker	103 22	1,849 63	1,065 26		2,816 25
4	Beltrami					
5	Benton		2,819 36	636 07		2,045 87
6	Big Stone	1,498 36	2,619 46	459 06		
7	Blue Earth	15,333 18	9.187 43	4,939 03	$ 4,489 93	1,028 48
8	Brown	4,713 11	4,599 84	3,046 82		181 91
9	Carlton		8,153 06			230 10
10	Carver	1,452 40	6,681 75	655 37		5,534 86
11	Cass					
12	Chippewa		2,151 45	1,498 30		1,218 62
13	Chisago	985 42	1,585 22	2,239 69	2,785 24	1,905 60
14	Clay	14,005 45	11,841 74	766 54		4,184 61
15	Cook					
16	Cottonwood		2,174 54	1,244 36		951 82
17	Crow Wing	3,732 81				
18	Dakota	2.732 06	8.176 34	2,273 45	17,758 41	3,494 23
19	Dodge	335 79	2,725 15	3,036 00		5,320 72
20	Douglas	1,971 81	4,643 36	1,838 79		200 00
21	Faribault		8,016 16	5,064 01	11,205 38	
22	Fillmore	891 24	5,389 00	3.802 72	10,565 21	3,695 57
23	Freeborn	2,049 65	3,502 00	3,241 89	6.770 66	7.434 95
24	Goodhue	22,626 71	15.678 41	2,390 91	6,201 77	5,060 35
25	Grant		3,243 88	1,713 75		308 00
26	Hennepin	411,090 64	12,773 38	5,302 04	120 41	365,116 99
27	Houston	70 00	4,509 37	2,233 38	851 67	1,010 12
28	Isanti		1,587 19	1,191 09		
29	Itasca					
30	Jackson	444 29	1,671 01	1.740 05	435 33	1,087 96
31	Kanabec			2,686 50		
32	Kandiyohi	604 61	4,471 71	3,330 55		
33	Kittson	432 00	713 21			2,193 54
34	Lac qui Parle		2,281 63	878 06		1,278 55
35	Lake		69 30	323 85		
36	Le Sueur	3,197 47	4,709 69	1,170 09		5,564 13
37	Lincoln		1,321 23	199 50		706 45
38	Lyon	458 76	1,977 19	3.523 05		
39	McLeod	1,145 18	4,162 23	1,828 08		4,702 08
40	Marshall	286 55	2,160 26	475 00		
41	Martin	73 35	2,040 95	2.882 02		1,356 12
42	Meeker	1,998 46	2,818 88	3,030 43		1,252 12
43	Mille Lacs	683 82	2,400 00	1,985 05		
44	Morrison	615 63	9,345 18			
45	Mower	4,475 12	3.837 75	6,250 75	363 47	3,210 62
46	Murray	201 31	2,903 53	1,199 00		
47	Nicollet	3.473 52	2.247 12	1,847 99	1,750 00	2,093 77
48	Nobles	2,576 84	2.132 21	2,042 46	402 58	
49	Norman		2,300 49	780 52		1,682 93
50	Olmsted	7 184 09	4,982 43	2,552 71	2,128 10	13,126 26
51	Otter Tail	7,776 73	12,529 05	5,317 23		576 10
52	Pine		932 64	2,562 51		289 22
53	Pipe Stone	185 82	2.046 81	456 61		318 59
54	Polk	6,811 72	5,161 14	14,688 15		3.975 50
55	Pope		3,920 93	1,558 71		381 99
56	Ramsey	474.213 85	2,081 75	7,053 90		
57	Redwood		2,404 76	8,654 93	713 56	1,440 06
58	Renville	50 36	5,163 71	8,352 52		
59	Rice	21,612 69	13 862 57	2,867 48	1,102 17	
60	Rock	242 28	1,324 12	1,754 58		1.630 26
61	St. Louis	9,625 63	4.377 54		4,812 82	6,721 42
62	Scott	266 13	2,910 43	739 45		9.709 96
63	Sherburne	608 90	1,568 64	1,033 26		2,519 20
64	Sibley	771 96	3,959 64	8,159 86	1,074 67	8,435 85
65	Stearns	3,993 69	12,923 36	5,712 26	1,721 09	3.667 68
66	Steele		3,183 36	1.873 69		6.585 29
67	Stevens	1,815 28	1,586 91	2,042 47		1.150 63
68	Swift	1,357 37	4,103 44	1,667 77		
69	Todd		5.280 36	8,540 44		
70	Traverse		1,927 70	120 91		1,057 83
71	Wabasha	9,004 95	9.027 03	2,269 48	7,173 64	1,104 22
72	Wadena		2.184 31	640 77		126 58
73	Waseca	623 10	2.355 22	8,818 01	2,614 73	3,349 46
74	Washington	56,055 15	2,800 69	2,699 75		1,256 60
75	Watonwan		1,439 54	1,664 84		
76	Wilkin		4.920 08	882 37		
77	Winona	11,859 25	5,039 03	2,409 15	17,870 66	10,304 30
78	Wright	571 00	10.086 33	8.157 45	5,692,86	530 94
79	Yellow Medicine	309 67	3,543 42	1,886 45		113 36
	Totals	$1,125,909 69	$306,589 46	$170,918 35	$108,603 76	$525,182 92

STATEMENT "H."—Average taxable value per acre of lands in the several Counties, for the years 1872, 1874, 1876, 1878, 1880 and 1882.

	COUNTIES.	Value per acre 1872.	Value per acre 1874.	Value per acre 1876.	Value per acre 1878.	Value per acre 1880.	Value per acre 1881.	Value per acre 1882.
1	Aitkin	....	$4 14	$4 77	$2 18	$2 58	$2 88	$2 69
2	Anoka	$2 88	4 35	3 41	3 47	3 81	3 90	3 46
3	Becker	3 51	5 31	4 09	3 77	4 62	4 46	4 41
4	Beltrami	....	....	....	1 89	2 85	2 85	2 71
5	Benton	2 42	3 33	3 78	3 18	3 29	3 24	2 73
6	Big Stone	....	....	4 55	3 64	4 52	4 88	5 21
7	Blue Earth	5 35	10 77	9 33	10 76	10 71	10 72	10 79
8	Brown	5 89	7 74	5 92	7 24	6 78	6 73	7 30
9	Carlton	3 50	3 74	3 98	2 43	3 30	3 84	6 17
10	Carver	4 11	8 77	8 46	10 17	11 06	11 03	12 41
11	Cass	....	4 15	2 53	2 17	2 10	2 10	2 86
12	Chippewa	2 91	4 81	4 33	4 45	5 29	5 21	5 28
13	Chisago	3 22	5 00	4 02	4 74	4 90	5 03	4 85
14	Clay	....	4 26	3 98	4 00	5 22	5 91	5 52
15	Cook	....	....	....	....	1 50	1 50	2 51
16	Cottonwood	2 93	4 93	3 99	5 04	5 05	4 78	4 56
17	Crow Wing	....	5 40	3 76	2 28	3 35	3 33	6 26
18	Dakota	6 29	13 14	13 61	12 49	12 37	12 28	12 54
19	Dodge	5 43	10 51	11 28	12 22	10 79	10 79	10 48
20	Douglas	2 90	4 94	4 24	3 98	4 92	4 88	5 50
21	Faribault	3 99	7 00	6 35	7 34	7 54	7 52	7 55
22	Fillmore	5 40	10 00	11 85	12 53	10 99	11 00	10 83
23	Freeborn	2 97	6 53	9 10	10 66	9 91	9 80	10 00
24	Goodhue	5 90	12 86	13 91	16 51	13 91	13 93	13 82
25	Grant	....	3 90	4 07	3 37	4 22	4 20	5 02
26	Hennepin	8 19	21 31	21 83	22 13	23 12	22 60	28 32
27	Houston	4 80	9 77	10 92	9 08	8 61	8 59	7 92
28	Isanti	....	3 24	3 08	2 58	3 51	3 49	2 67
29	Itasca	....	....	....	2 02	1 95	1 95	2 69
30	Jackson	2 75	4 80	4 24	4 18	4 93	4 92	4 06
31	Kanabec	2 15	3 02	3 03	2 15	3 64	3 97	4 04
32	Kandiyohi	2 98	7 69	5 66	5 43	6 32	6 28	6 29
33	Kittson	....	....	....	....	4 01	3 20	3 55
34	Lake	1 55	2 57	2 05	1 58	1 58	1 57	2 53
35	Lac qui Parle	2 69	4 03	4 15	3 87	4 96	....	4 79
36	Le Sueur	4 02	8 25	8 35	9 83	8 92	8 86	9 00
37	Lincoln	....	3 14	3 17	2 83	4 83	4 89	4 17
38	Lyon	....	4 16	3 74	4 88	5 05	5 07	5 17
39	McLeod	3 47	6 90	6 59	7 47	7 46	7 44	7 75
40	Marshall	....	....	....	....	6 44	5 58	5 26
41	Martin	2 98	4 93	4 34	4 36	5 32	5 32	5 44
42	Meeker	3 53	8 03	6 45	6 84	7 06	7 00	6 97
43	Mille Lacs	2 13	3 04	3 03	2 13	2 51	3 09	2 10
44	Morrison	2 57	3 24	3 24	3 13	4 32	4 24	4 14
45	Mower	4 69	9 13	10 67	12 48	10 35	10 27	9 40
46	Murray	....	3 55	4 00	3 50	4 89	4 87	4 20
47	Nicollet	4 53	8 87	8 61	8 95	9 15	9 15	9 06
48	Nobles	3 20	7 66	4 66	4 24	4 27	4 82	4 41
49	Norman	....	....	....	....	....	....	4 68
50	Olmsted	6 47	13 63	14 23	16 22	13 78	13 78	13 35
51	Otter Tail	3 15	4 97	4 31	3 03	4 92	4 82	5 67
52	Pine	2 52	3 68	3 07	2 25	2 27	2 34	1 87
53	Pipe Stone	....	....	....	....	3 90	4 05	4 63
54	Polk	....	3 07	3 84	2 54	5 08	4 38	5 10
55	Pope	2 56	4 53	4 25	3 70	4 22	4 24	4 96
56	Ramsey	15 98	30 40	19 70	18 12	24 82	24 32	30 61
57	Redwood	2 89	4 92	4 05	5 32	5 35	5 38	5 28
58	Renville	2 92	4 97	4 02	4 92	5 40	5 34	5 56
59	Rice	6 36	12 42	11 78	13 47	12 10	12 21	12 40
60	Rock	2 60	2 78	3 82	4 92	5 08	4 95	4 82
61	St. Louis	6 07	4 78	3 47	2 60	2 49	2 56	4 17
62	Scott	4 37	9 98	9 76	10 87	10 69	10 09	10 27
63	Sherburne	2 72	4 06	3 73	2 93	3 01	3 07	3 18
64	Sibley	3 86	7 46	7 81	8 57	7 79	7 74	7 71
65	Stearns	3 30	6 71	5 17	4 87	6 23	6 19	5 92
66	Steele	5 59	11 39	10 94	11 90	10 44	10 43	11 15
67	Stevens	2 66	5 06	4 55	4 79	5 13	5 14	5 06
68	Swift	2 39	4 47	5 00	4 91	5 51	5 50	5 27
69	Todd	2 53	3 75	3 49	2 39	3 30	3 25	3 00
70	Traverse	....	....	....	2 70	3 76	4 55	5 38
71	Wabasha	5 28	10 86	12 39	13 36	10 53	10 53	9 50
72	Wadena	....	3 78	3 19	2 50	3 76	3 69	4 30
73	Waseca	4 44	8 83	9 35	10 46	10 16	10 24	10 85
74	Washington	6 13	11 53	11 22	11 47	11 39	11 65	11 40
75	Wantonwan	3 96	6 23	4 88	5 28	5 29	5 30	5 43
76	Wilkin	....	4 07	3 94	2 93	4 05	4 38	5 15
77	Winona	5 60	12 81	12 76	13 00	10 75	10 70	10 11
78	Wright	3 12	6 19	6 44	7 29	7 59	7 56	8 23
79	Yellow Medicine	2 43	4 25	4 06	4 83	4 65	4 65	4 59

STATEMENT "I."—Showing the Total Valuation of Taxable Property in Each County from 1862 to 1882 Inclusive.

	COUNTIES.	1862.	1863.	1861.	1865.	1866.
1	Aitkin	....	....	....	....	....
2	Anoka	$ 535,133	$ 542,098	$ 556,061	$ 561,318	$ 603,363
3	Becker	....	....	....	....	....
4	Benton	189,721	189,967	311,864	348,199	371,992
5	Big Stone	....	....	....	....	....
6	Blue Earth	864,949	917,188	1,305,589	1,602,718	2,604,768
7	Beltrami	....	....	....	....	....
8	Brown	....	257,297	318,532	387,315	405,088
9	Carlton	....	....	....	....	....
10	Carver	505,953	530,152	689,628	714,041	984,022
11	Cass	....	....	....	....	....
12	Chippewa	....	....	....	....	....
13	Crow Wing	....	....	....	....	....
14	Chisago	537,924	558,751	648,785	652,598	718,003
15	Clay	....	....	....	....	....
16	Cook	....	....	....	....	....
17	Cottonwood	....	....	....	....	....
18	Dakota	1,648,144	1,850,424	2,291,407	2,377,930	2,837,674
19	Dodge	656,467	695,616	899,778	1,082,566	1,419,192
20	Douglas	....	....	....	....	....
21	Faribault	308,120	225,981	681,423	820 741	1,057,743
22	Fillmore	1,632,813	1,740,540	2,319,411	2,375,501	2,831,178
23	Freeborn	423,907	483,781	711,310	780,640	975,851
24	Grant	....	....	....	....	....
25	Goodhue	1,866,761	2,009,417	2,549.303	2,811,102	3,841,971
26	Hennepin	2,258,446	2,415,866	2,624,069	2,891,309	4,488,327
27	Houston	1,091,904	1,157,020	1,400,234	1,417,395	1,681,199
28	Isanti	49,353	57,119	65,485	71,872	80,062
29	Itasca	....	....	....	....	....
30	Jackson	....	....	....	....	35,965
31	Kandiyohi	....	....	....	....	48,903
32	Kanabec	115,095	120,676	198,688	200,340	201,613
33	Kittson	....	....	....	....	....
34	Lake	....	....	....	....	....
35	Lac qui Parle	....	....	....	....	....
36	Le Sueur	529,347	550,556	727,887	750.194	1,024,130
37	Lincoln	....	....	....	....	....
38	Lyon	....	....	....	....	....
39	Marshall	....	....	....	....	....
40	Martin	34.797	58,784	105,248	189,912	144,458
41	McLeod	240,143	275,223	392,112	507,133	520,879
42	Meeker	....	....	236,956	320,929	372,289
43	Mille Lacs	178,312	176,877	239,335	253.965	321,068
44	Morrison	229.626	229,616	260,580	339.862	414,745
45	Mower	707,693	732.007	925,106	957,924	1,194,601
46	Murray	....	....	....	....	....
47	Nicollet	633,306	628,789	806,866	847,123	1,120,845
48	Nobles	....	....	....	....	....
49	Olmsted	1,546,615	1,701,871	2,076,913	2,350,640	3,149.165
50	Otter Tail	....	....	....	....	....
51	Pine	483,233	424,487	436,423	436,321	330,755
52	Pipestone	....	....	....	....	....
53	Polk	....	....	....	....	....
54	Pope	....	....	....	....	....
55	Ramsey	3,767,409	4,062,476	5.484,950	6 308,058	7,466,445
56	Renville	....	....	....	....	....
57	Rice	1,218,500	1,338,692	1,707,135	1,913,138	2,581,785
58	Redwood	....	....	....	12,153	33,188
59	Rock	....	....	....	....	....
60	St. Louis	78,707	83,050	111,106	119,676	59,729
61	Scott	753,220	772,109	860.528	901.986	1,149.790
62	Sherburne	282.550	289,911	359.576	376.714	376,897
63	Sibley	390.162	373.522	534.398	674,922	748,727
64	Stearns	572,538	613.853	644,080	795,373	1,221.635
65	Steele	491,661	535,469	618,780	886,445	1,270,518
66	Stevens	....	....	....	....	....
67	Swift	....	....	....	....	....
68	Todd	....	....	....	....	....
69	Traverse	....	....	....	....	....
70	Wabasha	1,100,604	1,303,571	1,852,618	1,866,867	2,383,172
71	Wadena	....	....	....	....	....
72	Waseca	331,823	259,340	528,435	582,816	720,182
73	Washington	1,541,971	1,614,272	1,716,856	1,802.372	2.260,189
74	Watonwan	....	....	54,564	72,704	55,905
75	Wilkin	....	....	....	....	....
76	Winona	1,677,401	1,787.340	2,270,031	2,285,436	2,097,393
77	Wright	408,817	438,610	500,239	576,748	734,153
78	Yellow Medicine	....	....	....	....	....
	Totals	$29,832,719	$32.211,324	$41,222.264	$45,127,318	$57,974,352

STATEMENT "I" Continued.

	1867.	1868.	1869.	1870.	1871.	1872.	1873.
1	....	....	....	....	....	....	$ 210,920
2	$ 642,668	$ 785,331	$ 854,354	$ 826,901	$ 858,762	$ 988,250	1,026,940
3	....	....	....	....	....	93,041	355,973
4	399,951	423,425	454,646	495,697	501,219	539,748	549,358
5	....	....	....	....	....	....	....
6	3,012,396	3,207,901	3,548,909	3,825,828	3,913,647	4,105,703	4,213,438
7	....	....	....	....	....	....	....
8	447,644	630,620	713,383	807,037	880,584	1,183,083	1,267,979
9	....	....	....	....	179,273	189,258	225,120
10	1,068,909	1,249,009	1,265,393	1,266,216	1,265,531	1,292,292	1,291,908
11	....	....	....	....	....	....	913,820
12	....	....	....	115,090	128,821	179,427	227,192
13	38,297	....	....	53,192	....	....	414,639
14	764,855	858,523	898,040	1,016,774	1,029,631	1,141,650	1,233,949
15	....	....	....	....	....	....	789,627
16	....	....	....	....	....	....	....
17	....	....	....	....	317,000	344,798	353,481
18	2,870,057	3,749,802	3,795,615	3,517,690	3,535,187	3,560,239	3,568,841
19	1,452,208	1,602,599	1,6 6,425	1,809,267	1,802,169	1,902,500	1,909,290
20	306,229	416,040	502,927	519,631	644,515	714,589	774,681
21	996,578	928,480	1,100,435	1,496,705	1,686,259	1,912,881	2,069,249
22	2,985,462	3,734,512	3,915,906	4,091,697	4,150,139	4,171,895	4,236,935
23	1,116,511	1,204,733	1,272,263	1,578,896	1,655,264	1,714,331	1,811,959
24	....	....	....	....	....	....	....
25	4,088,418	4,521,257	4,758,423	4,468,352	4,544,258	4,718,514	4,841,549
26	5,202,430	5,764,273	5,878,153	6,532,049	6,921,171	8,811,288	9,0·9,798
27	1,803,227	1,976,500	2,038,636	2,298,345	2,286,151	2,411,054	2,537,975
28	107,228	112,219	129,382	175,939	129,382	....	445,852
29	....	....	....	....	....	....	....
30	49,696	55,975	73,473	91,221	111,543	202,854	275,092
31	56,775	299,535	132,826	218,196	628,641	736,224	866,350
32	197,280	201,254	208,968	279,911	286,855	290,780	307,345
33	....	....	....	....	....	....	....
34	....	31,721	34,397	45,505	55,345	90,692	118,981
35	....	....	....	....	....	96,813	123,607
36	1,155,640	1,351,353	1,360,908	1,139,398	1,457,948	1,434,141	1,454,674
37	....	....	....	....	....	....	....
38	....	....	....	....	....	....	129,138
39	....	....	....	....	....	....	....
40	138,178	170,956	226,227	326,248	395,044	526,228	569,003
41	647,303	684,570	787,626	839,756	871,439	1,948,194	1,115,209
42	412,928	468,000	589,237	676,582	808,471	1,004,367	1,088,318
43	272,374	272,238	284,631	404,498	454,649	452,973	461,877
44	373,672	564,763	578,500	700,908	539,806	575,723	579,054
45	1,314,521	1,934,926	1,965,700	2,519,317	2,674,173	2,658,681	2,776,184
46	....	....	....	....	....	....	253,735
47	1,156,314	1,267,031	1,344,724	1,456,813	1,458,793	1,519,626	1,586,370
48	....	....	....	....	....	....	257,643
49	3,751,835	4,374,268	4,518,616	4,464,858	4,502,861	4,411,261	4,645,773
50	....	....	....	313,565	500,042	673,275	848,778
51	331,783	331,575	335,432	466,285	497,241	....	703,309
52	....	....	....	....	....	....	....
53	....	....	....	....	....	....	155,346
54	310,552	305,462	348,979	384,983	473,707	475,665	516,514
55	8,204,542	9,265,949	8,447,769	10,492,353	10,962,956	14,780,390	15,645,830
56	75,669	121,106	257,793	38 5,139	377,549	436,162	599,853
57	2,887,113	3,130,184	3,161,956	3,276,465	3,532,390	3,593,936	3,621,557
58	26,130	277,503	467,204	587,114	618,644	514,588	884,120
59	....	....	....	....	....	68,827	166,328
60	152,068	244,305	306,701	1,769,435	1,916,494	2,775,080	3,100,397
61	1,234,334	1,395,970	1,360,226	1,278,088	1,314,542	1,360,975	1,351,785
62	412,018	503,305	518,203	510,864	522,880	553,909	550,878
63	815,814	842,035	894,911	1,003,100	1,017,231	1,073,314	1,221,504
64	1,915,535	2,089,648	2,178,965	2,187,539	2,262,252	2,754,422	2,878,625
65	1,569,201	1,745,256	1,771,679	1,893,468	1,946,541	1,911,489	1,942,546
66	....	....	....	....	....	40,730	84,871
67	....	....	....	....	79,206	105,911	129,442
68	153,225	170,852	244,080	370,968	489,731	561,940	599,815
69	....	....	....	....	....	....	....
70	2,522,152	2,686,924	2,852,401	2,725,838	2,822,600	3,088,066	3,120,954
71	....	....	....	....	....	....	40,079
72	786,112	1,228,379	1,241,862	1,269,111	1,296,987	1,340,716	1,435,412
73	2,510,142	3,043,191	2,003,421	3,058,826	3,095,161	3,473,732	3,801,838
74	67,897	118,261	211,451	305,471	430,939	484,430	514,242
75	....	....	....	....	....	....	608,201
76	3,430,302	4,405,462	4,673,612	4,988,543	4,988,087	5,080,235	5,131,377
77	906,365	1,022,263	1,100,460	1,882,493	1,129,520	1,255,940	1,346,468
78	....	....	....	....	....	295,447	333,445
	$65,140,248	$75,795,366	$78,242,916	$86,940,910	$90,850,010	$101,522,357	$112,298,125

STATEMENT

	COUNTIES.	1874.	1875.	1876.
1	Aitkin	$ 179,220	$ 222,726	$ 209,293
2	Anoka	1,689,501	1,657,736	1.447.195
3	Becker	411,604	546,413	580,558
4	Benton	727,719	729,279	832,633
5	Big Stone	....	26,234	52,219
6	Blue Earth	7,470,101	7,343,880	6,707,020
7	Beltrami	....	....	48,330
8	Brown	2,536,250	2,479,174	2,556,585
9	Carlton	252.141	253.644	283,989
10	Carver	2,553,771	2,507,993	2,475,068
11	Cass	879,727	1,163,556	748,245
12	Chippewa	391,569	433,617	430,213
13	Crow Wing	389.222	378,470	305,333
14	Chisago	1,873 848	1,897,230	1,530,255
15	Clay	689,507	735,954	840,856
16	Cook	....	....	....
17	Cottonwood	586,937	617,727	521,307
18	Crow Wing	6,727,015	6,784,407	7,222,818
19	Dakota	3,730,352	3,861.083	4,039,720
20	Dodge	1,375,662	1,512,252	1,529,229
21	Douglas	3,638,768	3,523,715	3,373,636
22	Faribault	8.093,347	8,262,126	9,040,921
23	Fillmore	3,155,152	3,183,822	4,392,597
24	Freeborn	281 243	286,298	341,850
25	Goodhue	10.010,943	10,022,013	10,260,235
26	Grant	27,551,998	28,035,594	27,939,542
27	Hennepin	4,589,784	4,813,756	5,240,666
28	Houston	582,328	604,378	627,042
29	Isanti	....	....	482,570
30	Jackson	496,308	569,573	640,069
31	Kanabec	1,939,934	2,183,602	2,340,888
32	Kandiyohi	430,000	540,430	483,992
33	Kittson	....	....	....
34	Lac qui Parle	209 467	219,648	178,856
35	Lake	232,186	251,901	294,850
36	Le Sueur	2,814,635	2,851,140	3,003,435
37	Lincoln	19,591	25,445	36,487
38	Lyon	778,031	818,781	815,093
39	McLeod	....	....	....
40	Marshall	996,367	1,073,186	1,034,493
41	Martin	2,278,492	2,288.053	2,337,429
42	Meeker	2,445,488	2,456,459	2,331,052
43	Mille Lacs	657,069	674,863	684,919
44	Morrison	768.190	804,943	743,420
45	Mower	5,343,457	5,454,617	6,500,381
46	Murray	257,763	173,457	403,856
47	Nicollet	3,038,787	2,976 254	2,862,235
48	Nobles	501,101	582,884	558,107
49	Norman	....	....	....
50	Olmsted	8,809,610	8,756,814	9,503,067
51	Otter Tail	1,569,253	1,676,631	1,902,101
52	Pine	1,105,182	1,042,895	822,973
53	Pipestone	....	....	....
54	Polk	141,207	172,386	226,187
55	Pope	900,982	907.433	1,002.641
56	Ramsey	32,013.614	30,282.666	27,284,523
57	Redwood	1,039,579	1,102,779	893,157
58	Renville	7,380,886	7,600,522	7,089,999
59	Rice	953,424	1,049,302	927,942
60	Rock	271,725	227,069	321,159
61	St. Louis	2,707,164	2.474,367	1,497,832
62	Scott	2,936,396	2,931,653	2,955.483
63	Sherburne	845,719	860,985	916,878
64	Sibley	2,562,825	2,595,565	2,895,451
65	Stearns	5,189,447	5,261,569	4.965,048
66	Steele	3,974,927	3,985,231	4,089,440
67	Stevens	130,401	138,793	216,214
68	Swift	226,754	251,200	371,848
69	Todd	903,614	937,261	966,237
70	Traverse	....	....	....
71	Wabasha	5,828,719	5,926,159	6,444.701
72	Wadena	63.252	80,614	105,347
73	Waseca	2.972,810	3,000,153	3.222,257
74	Washington	6,496,924	6,628,897	5,883,163
75	Watonwan	825,840	869,052	812,332
76	Wilkin	421,321	419.617	394,898
77	Winona	10,525,230	10,754,473	10,816,596
78	Wright	2,549.056	2,605,110	2,906,956
79	Yellow Medicine	536,715	538,140	806,889
	Totals	$217,427,211	$218,855,743	$218,850,744

"I."—Concluded.

	1877.	1878.	1879.	1880.	1881.	1882.
1	$ 215,060	$ 124,427	$ 137,692	$ 194,504	$ 217,638	$ 247,975
2	1,449,195	1,497,309	1,462.818	1,785,085	1,841,058	1,778,785
3	623,024	740,186	837,449	1,060,787	1,085,209	1,259.840
4	848,558	619,696	667,268	848,969	869,088	764,574
5	41,415	84,521	160,157	387,760	573,592	814,047
6	3,798,868	7,630,837	7,706,104	7,557,480	7,641,916	7,699,346
7	47,030	56,576	60,728	90,476	90,476	99,461
8	2,555,613	2,956,288	3,060,635	3,040,883	3,190,334	3,217,527
9	268,205	188,862	209,300	294,794	405,268	644,483
10	2,568,513	2,941,999	3,004,897	3,174,685	3,272,353	3,691,580
11	755,062	664,498	687,053	660,928	737,371	1,080,202
12	432,959	578,696	787,889	1,055,495	1,181,174	1,302,407
13	293,306	209,325	231,056	307,587	417,620	1,393,896
14	1,554,225	1,620,048	1,624,451	1,823,123	1,799,419	1,779,239
15	778,091	847,245	1,173,252	1,754,244	1,909.421	3,090,227
16	....	....	....	26,856	20,227	56,003
17	480.960	728,577	959,223	1,082,075	1,187,198	1,168,336
18	7,339,694	6,421,171	6,647,372	6,353,397	6,443,978	6,868,085
19	4,281.470	4,599.179	4,710,408	4,133,743	4,150,602	3,894,682
20	1,568,207	1,550,794	1,666,882	2,172,610	2,332,100	2,803,599
21	3,457,086	4,052,145	4,199,612	4,220,994	4,282,987	4,430,458
22	9.230,532	9,441,493	9,708,343	8,644,295	8,567,413	8,385,281
23	4,500,796	5,309,894	5,449,802	5,228,134	5,238,555	5,410,463
24	412,349	413,323	569,916	773,032	880,916	1,119,177
25	10,692,002	12,974,841	13,116,128	11,332,911	11,230,853	10,662,129
26	28.146,066	28,594,496	31,718,591	38,183,474	41.163,826	55,294,299
27	5,232,873	4,441.020	4,580,186	4,293,676	4,384,653	4,104,007
28	654,712	602.107	640,169	906,616	926,275	786,237
29	484.851	260,942	257,430	252,595	254,859	398,681
30	646.585	765,314	976,493	1,190,920	1,243,353	1,121,886
31	2.272,905	2,433,565	2,644.550	3,070,930	3,166,405	3,285,397
32	489,789	350,783	355,770	586,369	569,101	597,000
33	....	....	27,481	114,129	278,069	507,767
34	179,540	113,893	130,962	119,077	129,248	231,121
35	307,424	372,769	539,917	839,886	....	1,646,568
36	2,159,996	3,483,943	3,510,465	3,323,963	3,468,151	3,691,007
37	39,931	75,242	156.168	326,653	419,936	476.810
38	316,601	571,727	840,042	1,128,584	1,262,549	1,387,115
39	....	....	53,853	101,373	298,306	574,690
40	1,069,925	1,219,336	1,344,469	1,640,159	1,629,515	1,679,996
41	2,387,350	2,692,437	2,828,528	2,930,439	3,035,364	3,194.455
42	2,527,819	2,735,231	2,844.056	3,027,084	3,177,999	3,272,737
43	682.377	493,514	498,048	592,281	542.601	570,430
44	760,049	845,099	1,109,598	1,636,511	1,969,530	1,642,291
45	6,524,673	7,231,940	7,316,338	6,283,051	6,155,268	5,797,652
46	246,301	300,042	433,234	731,977	818,511	881,382
47	2,943 583	3,405,526	3,468,610	3,522,211	3,606 824	3,628,501
48	635,898	773,134	1,021,074	1,260,827	1,238,200	1,266,060
49	....	....	....	....	....	1,371,469
50	9,464,327	10,337,473	10,446,049	9,012,418	8,886,913	8,599,784
51	2,171.132	1,970,169	2,316,033	3,675,386	4,035,571	6,337,565
52	832,740	611,521	631,305	634,612	576,815	570,192
53	....	....	82,515	168,239	286,944	369,169
54	273,588	356,211	662,812	1,903,785	2,914,114	3,809,807
55	1,105,286	1,039,916	1,151,005	1,358,012	1,428,175	1,759,114
56	26.547,302	24,704,092	25 553,163	30,547,264	32,961,375	43,484.641
57	860.477	1.208.316	1,808,452	2,020,982	2,288,396	2,439,226
58	7,089,722	7,534,883	7,398,615	7,181.835	7,491,958	7,321,626
59	936,829	1,342,885	1,652,722	1,771,860	1,829.832	1,865,558
60	427,503	761,824	965,199	1,098,037	1,105,068	1,183,037
61	1,339,121	1,267,484	1,286,352	1,563,532	1,807,941	4,500,476
62	3,047,442	3,199,525	3,244,119	3,153,676	3,302,004	3,306,106
63	942,649	715,902	752,112	788,589	836,137	897,764
64	2,491,252	3,250.175	3,420,421	3,237,870	3,273,156	3,281,142
65	4,804,319	4,548,566	4,790,425	5,884,370	6,068,190	6,509,592
66	4,268,908	4,495,244	4,611,295	4,215,619	4,161,338	4,448,414
67	432,704	664,420	917,022	1,191,802	1,331,982	1,456,423
68	549.128	780,315	1,116,873	1,487,514	1,602,431	1,701,492
69	1,016,329	787,176	867,416	1,216.733	1,303,481	1,288,848
70	....	20,236	45,155	193,727	421.969	723,608
71	6,546,595	6,705,251	6,663,363	5,596,786	5,562,372	4,887,137
72	118,624	131,194	208,543	364,309	446,352	573,062
73	3,155,002	3,607,374	3.690,466	3,662,843	3,721,377	3,904,701
74	5,976,851	6,097.843	6,191,598	6,274,551	6.624,307	7,459,685
75	792,316	938,782	1,080.291	1,093,252	1,134,085	1,181,896
76	447,817	344,837	447,955	803,029	1,023,976	1,403,083
77	10,653,307	10,099,635	10,025,280	8,990,184	9,161,064	9,433,374
78	3,043 654	3,367,180	3,536,524	3,684,532	3,810,916	4,162,693
79	683,511	865,629	1,074,168	1,212,557	1,287,349	1,364,970
	$220,925,638	$229,791,042	$242,771,715	$258,055,543	$269,999,375	$311,193,435

STATEMENT "K."

Showing the Assessed Valuation of all Taxable Property and State tax levied and paid each year from 1858 to 1882, inclusive.

YEAR.	Number of acres exclusive of town lots.	Value of Lands and Structures thereon.	Average value per acre	Value Town and City Lots and Structures thereon.	Value of Personal Property.	Total Valuation.	Total Taxes Levied.	Average Rate of taxation	Rate of State tax.	Total State Tax.	State Taxes Paid.
									Mills.		
1858	....	....	....	....	....	$41,346,778	$554,368 86	.0131	5	$209,234	$116,446 92
1859	....	....	....	....	....	35,576,292	505,230 04	.0113	5	177,881	
1860	....	$32,021,913	....	....	$ 4,731,495	36,743,408	655,985 49	.0178	4	147,013	113,601 87
1861	7,120,045	21,[illegible]95,258	$3 00	$11,954,799	5,914,683	39,264,740	658,358 09	.0165	4	157,059	100,186 83
1862	7,373,189	17,865,646	2 42	6,926,142	5,040,831	29,832,619	578,648 55	.0190	4½	134,247	196,277 25
1863	7,580,166	18,488,154	2 43	7,048,033	6,560,570	32,096,757	670,801 93	.0209	4½	144,435	199,884 22
1864	8,388,828	24,093,880	2 97	8,016,932	8,735,701	41,746,513	1,784,702 32	.0427	5½	229,606	199,629 17
1865	8,829,844	25,713,494	2 90	8,087,238	11,383,331	45,184,063	2,062,431 98	.0458	6	271,104	218,963 33
1866	9,271,001	31,612,013	3 40	11,403,474	14,958,865	57,974,352	1,889,803 86	.0327	6	347,846	241,807 57
1867	9,880,0[illegible]0	32,564,049	3 26	13,101,856	19,891,327	65,567,232	2,192,248 30	.0336	5	327,786	286,447 32
1868	9,491,073	39,125,042	4 12	16,715,431	19,954,893	75,795,366	2,294,500 06	.0303	5	378,977	284,636 11
1869	10,024,589	40,660,025	4 05	17,218,809	20,430,591	78,309,425	2,548,594 70	.0326	5	391,547	319,454 30
1870	10,536,921	46,236,193	4 38	20,985,155	19,912,325	87,133,673	2,783,776 46	.0319	5	435,668	336,460 83
1871	10,889,811	47,253,394	4 33	22,245,027	21,174,290	90,672,720	2,901,602 65	.0327	5	453,363	410,109 80
1872	11,586,669	42,704,966	4 54	28,576,178	22,092,692	103,373,836	3,125,869 00	.0303	5	516,869	418,413 71
1873	12,702,167	57,275,590	4 50	30,340,916	24,681,619	112,298,125	3,815,260 96	.0339	5	561,480	467,036 59
1874	13,741,404	113,410,620	8 25	58,994,793	45,021,798	217,427,211	4,102,835 84	0188	2.33	506,728	575,164 65
1875	13,993,391	114,733,198	8 19	58,960,078	45,162,467	218,835,743	3,892,482 96	.0177	2.1	459,606	461,793 88
1876	14,768,565	116,907,835	7 91	56,640,424	45,302,485	218,850,744	3,651,336 34	.0166	2	437,879	442,699 32
1877	15,310,765	118,769,222	7 76	57,014,757	45,141,659	220,925,638	3,804,734 26	.0172	2	441,930	432,727 86
1878	15,976,624	129,107,263	8 08	54,508,475	46,175,304	229,791,042	3,894,711 98	.0161	*2½	574,380	478,275 21
1879	17,054,224	133,514,075	7 83	55,732,623	53,527,017	242,771,715	3,751,529 21	.0162	1.5	364,185	582,977 00
1880	17,815,310	138,802,999	7 80	64,670,638	54,581,906	258,055,543	4,191,811 41	.0154	1.8	468,761	380,905 58
1881	18,430,789	141,572,497	7 68	67,376,687	62,209,777	271,158,961	4,698,771 57	.0173	1.4	379,689	504,666 80
1882	19,608,026	150,866,621	7 89	93,167,226	67,159,588	311,193,435	5,755,765 66	.0185	1.1	342,375	402,600 08

STATEMENT "L."

Receipts (including balances) disbursements and balances in treasury from January 1, 1858, to November 30, 1882, during each year since the formation of the State Government.

YEAR.	Receipts.	Disbursments.	Balance in Treasury.
Jan. 1, 1858, to Feb. 1, 1859	$ 286,902 36	$ 282,838 80	$ 4,063 56
Feb. 1, 1859 to Dec. 1, 1859	96,392 02	95,377 86	1,014 16
1860	139,522 62	138,846 84	675 78
1861	106,462 38	101,732 96	4,729 42
1862	221,091 75	184,535 88	36,555 87
1863	695,864 85	576,539 32	119,325 93
1864	496,482 53	402,952 15	93,530 38
1865	489,120 46	410,526 24	78,594 22
1866	529,455 22	461,265 29	68,189 93
1867	755,919 91	704,683 52	51,236 39
1868	836,550 02	762,315 90	74,234 12
1869	947,610 12	855,757 07	91,853 05
1870	732,069 01	595,905 01	136,164 00
1871	913,136 54	716,956 17	196,180 37
1872	979,661 65	736,361 59	243,300 06
1873	1,384,102 65	1,165,704 30	218,398 35
1874	1,331,210 87	1,148,059 96	183,150 91
1875	1,163,755 07	1,033,509 78	130,245 29
1876	1,151,649 79	1,035,385 50	116,264 29
1877	1,271,783 64	1,138,511 79	133,271 85
1878	1,610,909 17	1,562,409 97	48,499 20
1879	1,465,673 60	1,343,644 17	122,029 43
1880	1,685,055 88	1,420,903 89	264,151 99
1881	1,979,558 06	1,421,813 79	557,744 27
1882	3,201,415 79	3,058,317 21	143,098 58

Total receipts, exclusive of balances	$21,497,953 54
Total expenditures	21,354,854 96
Showing a balance of	$143,098 58

STATEMENT "M."

Showing the Financial Transactions of the State Since the Organization of the State Government.

Year.	Legislative.	Executive.	Judicial.	Public Printing.	Public Building.	Support of State Institutions	Invested Funds.	Apportioned School Fund.	Interest on State Debt.	Frontier Relief.	Miscellaneous.	Total.
1858-9	$ 92,608 15	....	....	....	....	....	....	....	$ 9,044 40	....	$276,564 11	$ 378,216 66
1860	51,000 00	$ 18,500 00	$ 19,200 00	$ 19,010 00	....	$ 5,650 00	....	....	20,973 00	....	4,513 84	138,846 84
1861	19,036 45	13,019 72	13,677 78	12,335 91	....	6,309 26	....	....	11,000 00	....	26,353 94	101,733 06
1862	25,546 47	18,943 36	19,752 75	14,664 02	....	7,786 28	....	....	20,944 43	....	76,898 57	184,535 88
1863	19,128 05	16,343 22	20,082 50	13,533 38	$ 5,000 00	11,725 00	$111,687 50	$ 11,169 13	29,664 90	....	338,205 64	576,539 32
1864	19,803 42	20,046 12	20,400 64	14,596 18	....	21,360 73	134,325 00	68,676 32	27,073 60	....	76,670 14	402,952 15
1865	20,310 69	20,376 77	20,468 74	14,940 88	....	21,603 13	110,519 76	52,839 82	26,786 80	....	122,979 65	410,526 24
1866	22,637 70	20,599 03	22,599 03	15,866 32	36,030 96	33,654 54	145,790 35	82,396 37	37,417 80	....	44,268 19	461,265 29
1867	37,410 05	27,637 24	29,651 60	19,449 70	134,790 84	52,924 98	244,125 56	91,629 42	25,620 40	....	41,443 73	704,683 52
1868	30,983 90	27,359 02	31,584 28	15,452 64	127,009 36	71,788 21	265,691 96	115,794 48	21,860 00	$ 6,946 42	47,785 63	762,315 90
1869	34,245 42	29,480 61	32,323 60	11,727 12	126,024 76	104,044 88	282,831 25	148,785 88	22,750 00	....	63,643 55	855,757 07
1870	36,283 99	29,001 28	36,458 51	15,713 26	101,578 81	117,561 82	....	179,359 85	24,500 00	....	55,447 49	595,905 01
1871	36,430 29	29,884 29	37,346 94	21,728 73	152,720 31	134,463 24	47,500 00	163,555 35	15,750 00	....	77,577 02	716,956 17
1872	64,735 65	37,566 91	39,533 10	24,958 84	37,087 79	171,881 07	70,110 00	161,269 64	24,500 00	....	104,718 59	736,361 59
1873	68,852 11	45,501 85	44,614 68	29,371 00	254,600 00	185,670 95	251,820 88	166,714 98	18,083 33	5,000 00	95,474 52	1,165,704 30
1874	72,969 70	48,564 97	45,694 86	49,366 61	188,099 05	221,625 10	168,757 47	194,654 10	31,255 00	31,970 25	95,102 85	1,148,059 96
1875	69,437 91	49,615 01	50,870 37	56,546 81	73,586 18	219,559 93	109,976 28	195,921 25	33,600 00	72,300 00	103,036 04	1,033,509 78
1876	62,050 07	48,099 38	52,425 08	46,449 51	54,377 48	242,357 28	178,191 40	208,952 53	35,000 00	43,856 28	63,626 49	1,035,385 50
1877	66,223 06	50,638 98	49,541 43	44,759 26	29,206 08	248,625 79	318,516 66	199,981 40	35,000 00	4,997 82	91,021 32	1,138,511 80
1878	69,332 77	49,332 23	49,881 80	49,987 84	36,199 45	314,812 77	383,743 36	217,241 38	29,750 00	205,000 00	159,128 37	1,562,409 97
1879	84,439 51	56,056 18	56,686 81	34,816 43	118,223 06	321,016 30	207,575 08	229,642 82	32,902 50	....	202,285 48	1,343,644 17
1880	....	55,583 52	49,049 62	18,642 02	81,492 04	305,762 12	367,518 74	253,149 71	28,995 19	....	265,710 93	1,420,003 89
1881	119,338 38	63,515 74	69,796 36	66,034 39	174,617 24	347,465 47	79,872 65	259,414 96	19,485 55	....	222,242 05	1,421,812 79
1882	28,885 65	59,980 19	79,502 47	34,513 74	331,983 53	356,294 41	1,596,005 00	259,097 89	99,792 60	....	212,261 73	3,058,317 21
Total	$1,151,689 39	$835,675 62	$891,142 95	$639,464 59	$2,062,686 95	$1,521,943 26	$5,074,463 90	$3,259,047 28	$681,749 50	$370,070 77	$2,867,019 87	$21,854,954 07

STATEMENT "N."

Showing Disbursements of the Treasury for the Support of State Institutions from 1861 to 1882, inclusive.

YEAR.	State Prison.	Reform School.	Insane Asylum.	University.	Normal Schools.	Deaf, Dumb, Blind and Imbeciles.	Soldiers' Orphans.	Total.
1861	$ 6,269 34	....	....	....	$ 1,318 19	....	....	$ 7,587 53
1862	7,603 18	....	$ 680 00	....	183 10	....	....	8,466 28
1863	7,925 00	....	1,718 62	....	....	$ 1,300 00	....	10,943 62
1864	10,144 69	....	3,675 39	....	3,000 00	4,540 65	....	21,360 73
1865	8,349 49	....	5,804 43	....	4,000 00	8,949 21	....	22,103 13
1866	12,162 96	....	9,671 32	....	5,000 00	7,563 44	....	33,654 54
1867	16,390 21	....	20,111 52	....	5,000 00	11,453 25	....	53 668 76
1868	19,659 76	$ 3,573 87	32,000 00	....	5,000 00	11,554 58	....	71,788 21
1869	17,547 90	9,786 97	43,792 50	$11,508 20	13,000 00	18,343 46	$ 1,574 05	115,553 08
1870	22,605 82	9,000 00	53,707 50	22,500 00	15,000 00	15,000 00	2,248 50	140,061 82
1871	26,975 48	12,500 00	56,000 00	17,500 00	18,000 00	15,000 00	5,987 76	151,963 25
1872	31,161 66	12,000 00	70,000 00	21,000 00	26,212 70	20,000 00	12,500 71	192,881 07
1873	35,729 40	26,000 00	60,000 00	16,500 00	28 069 80	20,000 00	15,871 75	202,170 95
1874	34,857 48	30,000 00	84,500 00	30,000 00	26,250 00	26,000 00	20,017 62	251,625 10
1875	36,058 52	27,000 00	78,500 00	30,000 00	33,571 00	26,000 00	18,430 41	249,559 93
1876	46,059 48	24,750 00	79,000 00	36,135 00	18,950 00	23,500 00	13,962 80	242,357 28
1877	71 92	27,000 00	111,500 00	39,000 00	30,000 00	28,000 00	13,053 87	248,625 79
1878	85,904 38	25,000 00	97,000 00	43,700 00	29,124 92	27,500 00	4,583 47	312,812 77
1879	52,893 58	28,476 35	132,788 68	45,980 00	30,720 64	27,226 35	1,375 24	319,640 84
1880	48,678 22	25,000 00	129,654 36	31,500 00	29,895 97	40,030 07	417 70	305,176 32
1881	50,968 24	37,500 00	135,170 99	47,000 00	38,258 47	39,571 45	72 35	348,541 50
1882	51,358 37	32,000 00	146,957 10	43,881 41	37,023 38	45,074 15	....	356,294 41
Totals	$629,375 08	$329,587 19	$1,352,232 41	$436,204 61	$397,569 17	$411,576 61	$110,102 23	$3,666,647 30

STATEMENT "O."

Showing the Total Cost of Buildings for the Several State Institutions.

YEARS.	Rebuilding Capitol.	Prison.	Reform School.	Insane.	Deaf, Dumb, Blind, and Imbecile.	University.	Normal Schools.	Totals.
1866	....	$ 7,100 00	....	$ 9,330 08	$ 9,600 82	....	$ 10,000 00	$ 36,030 90
1867	....	14,157 93	$ 5,000 00	39,233 73	43,339 18	$ 8,000 00	25,000 00	134,730 84
1868	....	....	6,600 00	76,436 27	7,033 09	7,000 00	30,000 00	127,069 36
1869	....	17,150 00	10,000 00	49,859 43	10,000 00	....	37,000 00	124,009 43
1870	....	12,150 00	18,100 00	10,140 57	466 91	....	65,576 68	106,434 16
1871	....	39,596 47	....	63,169 00	25,000 00	10,000 00	14,954 84	152,720 31
1872	....	31,387 79	....	3,000 00	....	....	2,700 00	37,087 79
1873	....	40,000 00	20,000 00	128,000 00	31,000 00	15,000 00	20,600 00	254,600 00
1874	....	5,849 35	5,500 00	77,000 00	9,000 00	61,500 00	20,000 00	178,849 35
1875	....	34,836 18	....	20,800 00	7,000 00	7,850 00	3,100 00	73,586 18
1876	....	3,136 76	....	25,000 00	4,000 00	18,000 00	....	50,136 76
1877	....	11,713 30	....	9,492 78	5,500 00	....	2,500 00	29,206 08
1878	....	23,061 09	....	....	3,500 00	....	....	26,561 09
1879	....	33,493 36	5,000 00	29,850 62	18,500 00	....	8,500 00	95,843 98
1880	....	24,734 63	10,000 00	14,401 19	23,904 54	2,000 00	....	75,043 66
1881	46,195 25	....	....	102,595 51	10,599 51	....	10,000 00	169,390 27
1882	139,226 14	20,129 10	2,000 00	132,546 60	15,195 49	1,000 00	....	310,097 33
Totals	$185,421 39	$318,496 10	$82,200 00	$790,859 00	$223,639 54	$130,350 00	$249,931 52	$1,980,897 55

STATEMENT "P."

Unexpended Balances of Appropriations of former years, Nov. 30, 1880, and appropriations for 1881, the amount of Warrants drawn during the fiscal year, 1881, and unexpended balances, Nov. 30, 1881.

APPROPRIATIONS.	Balances December 1, 1880.	Warrants drawn in 1881.	Balances November 30, 1881.	LAW.	
				Year.	Page.
*Painting Capitol	$ 176 80	....	$ 176 80	1874	259
Lac qui Parle River bridge	350 00	....	350 00	1874	386
Spunk Brook and Two Rivers bridge	400 00	....	400 00	1874	204
*University buildings	2,000 00	....	2,000 00	1875	179
Lake Shetek bridge	300 00	....	300 00	1875	420
Preparing and publishing tax laws	1,000 00	....	1,000 00	1876	123
*Tree planting claims	970 00	$ 968 00	2 00	1877	246
Extraordinary expenses, capture Northfield robbers	27 44	....	27 44	1877	178
Exchanging documents	6 83	6 83	....	1878	176
*Fuel and light	164 35	....	164 35	1878	166
Supreme Court Reports, Vols. 25, 26	1,200 00	1,200 00	....	1878	164
*Soldiers Orphans	2,516 81	72 35	2,444 46	1878	178
Governors' clerk's salary	100 00	100 00	....	1879	124
Auditor's extra clerks	712 30	....	712 30	1879	262
*Supreme Court contingent	37 12	36 33	79	1879	121
Selecting University lands	500 00	....	500 00	1879	121
*Fuel and lights	352 40	....	352 40	1879	122
Printing, advertising and binding	9,492 28	....	9,492 28	1879	121
Supreme Court Reports, Vol. 27	1,200 00	....	1,200 00	1879	121
*Law library	16 27	....	16 27	1879	121
*Printing paper	2,886 98	2,675 06	211 92	1379	121
Stationery	68 68	....	68 68	1879	121
Furniture and apparatus for University	2,000 00	....	2,000 00	1879	132
Water supply, University	1,500 00	500 00	1,000 00	1879	132
*Prison water pipes extension	520 00	....	520 00	1879	130
Repairs, Capitol roof	115 92	115 92	....	1879	127
*High School Board of Examiners	1,426 79	....	1,426 79	1879	35
State Board of Immigration	533 80	533 80	....	1879	168
*Farmers' Board of Trade	391 96	372 80	19 16	1879	96
*Express and mileage	463 48	....	463 48	1879	122
*Requisitions	716 94	....	716 94	1879	122
Tree planting claims	360 00	360 00	....	1879	122
Interest on temporary loan	925 59	925 59	....	1879	123
St. Paul fo. Capitol sewer	500 00	....	500 00	1879	123
Insane support	3,378 67	3,378 67	....	1879	129
*Prison current expenses	218 62	....	218 62	1879	129
Deaf, Dumb and Blind support	2,868 51	1,117 62	1,750 89	1879	129
Care Idiots and Imbeciles	367 98	367 98	....	1879	39
Governor's salary	316 74	316 74	....	1878	91
Secretary's salary	150 00	150 00	....	1874	261
Auditor and Land Commissioner's salary	250 00	250 00	....	1874	261
Treasurer's salary	291 73	291 73	....	1874	261
Supt. Public Instruction, salary	208 37	208 37	....	1874	261
Attorney General's salary	166 74	166 74	....	1878	91
Adjutant General's salary	125 00	125 00	....	1874	261
Railroad Commissioner's salary	250 00	250 00	....	1874	261
Insurance Commissioner's salary	166 75	166 75	....	1874	261
Librarian's salary	125 00	125 00	....	1878	91
Janitor's salary	100 00	100 00	....	1877	85
Public Examiner's salary	291 70	291 70	....	1878	132
Engineer's salary	100 00	100 00	....	1879	97
Fireman and day laborer	60 00	60 00	....	1879	97
Asst engineer and night watchman	75 00	75 00	....	1879	97
Military Storekeeper	33 32	33 32	....	1874	261
Messenger	50 00	50 00	....	1879	97
Governor's Private Secretary	125 00	125 00	....	1874	261

*Cancelled.

STATEMENT "P."—Continued.

APPROPRIATIONS.	Balances December 1, 1880.	Warrants drawn 1881.	Balances November 30, 1881.	LAW.	
				Year.	Page.
Governor's clerk	$125 00	$125 00	....	1879	124
Assistant secretary and statistician	166 74	166 74	....	1874	261
Secretary's clerk	82 87	82 87	....	1877	251
Auditor's chief clerk	125 00	125 00	....	1874	261
*Land clerk	234 26	100 00	$134 26	1878	92
Auditor's extra clerks	724 74	435 32	269 42	1874 1879	262 166
Deputy Treasurer	125 00	125 00	....	1879	120
Attorney General's clerk	16 73	16 73	....	1874	261
Public instruction clerk	100 00	100 00	....	1874	261
Insurance Commissioner's clerk	100 00	100 00	....	1878	165
Superintendent of fruit farm	83 37	83 37	....	1878	128
Clerk Supreme Court	125 00	125 00	....	1874	261
Reporter Supreme Court	250 00	250 00	....	1874	261
*Salaries of judges	8,392 35	7,659 06	733 29	1874 1879	262 164
Secretary's contingent	23 00	23 00	....	1879	123
Treasurer's contingent	3 55	3 55	....	1879	123
*Attorney General's contingent	400 65	182 08	218 57	1879	123
Public instruction contingent	68 15	68 15	....	1879	124
Library contingent	4 34	4 34	....	1879	124
Public Examiner's contingent	94 16	94 16	....	1879	124
*State costs	291 70	57 35	234 35	1879	124
*Fuel and lights	692 56	655 24	37 32	1879	124
*Law library	6 49	5 32	1 17	1879	124
*Binding law books	60 40	43 25	17 15	1879	124
*Printing paper	1 04	76	28	1879	124
Stationery	40 86	....	40 86	1879	124
*Repairs, capitol	17 62	15 70	1 92	1879	124
Historical society	1,107 50	1,107 50	....	1879	124
*State Board of Health	372 62	370 63	1 99	1879	124
Fish Commissioner	200 00	200 00	....	1879	125
*Expenses and mileage	423 05	87 35	335 70	1879	124
State Forestry Association	168 60	164 65	3 95	1877	254
*Sheriffs	1,643 29	412 30	1,230 99	1879	129
*Requisitions	940 86	229 85	711 01	1879	124
*Arrest and conviction of horse thieves.	2,200 00	1,700 00	500 00	1879	125
Rent of arsenal	23 98	23 98	....	1879	124
*Register's and Receiver's fees	803 75	....	803 75	1879	125
County and town plats	350 00	....	350 00	1879	125
*Deaf, dumb and blind build'g, heat'g, etc.	1,095 46	795 00	300 46	1879	129
Enlarging University grounds	20,000 00	....	20,000 00	1879	132
*Interest on State loans	14,654 81	9,575 00	5,079 81	1879	134
Insane support, 1st hospital	5,136 82	5,136 82	....	1879	129
Insane support, 2d hospital	2,541 47	2,541 47	....	1879	129
Prison current expenses	10,849 09	10,849 09	....	1879	129
Deaf, dumb and blind support	2,222 73	2,222 73	....	1879	129
St. Cloud Normal School support	258 47	258 47	....	1869 1872	16 256
2d hospital insane building	5,595 51	5,595 51	....	1879	133
Care of idiots and imbeciles	782 10	782 10	....	1879	39
Printing, advertising and binding	4,000 68	3,971 17	29 51	1879	124
*Executive contingent	563 16	488 91	74 25	1879	123
*Auditor's contingent	66 73	64 20	2 53	1879	123
Selling State lands	992 48	766 85	225 63	1879	124
Balance of appropriation, 1880, and former years	$133,000 61	73,606 87	59,393 74		
Cancelled November 30, 1881	....	....	19,008 32		
In force November 30, 1881	....	....	40,385 42		

*Cancelled.

**$2,300 of balance cancelled.

STATEMENT "P."—Continued.

Appropriations for 1881.

APPROPRIATIONS.	Amounts appropriated.	Warrants drawn in 1881.	Balances November 30th, 1881.	LAW.	
				Year.	Page.
Legislative	$73,000 00	$72,998 23	$ 1 77	1881	217
" deficiency	500 00	207 80	292 20	1881	*92
" extra session	75,000 00	46,246 55	28,753 45	1881	*88 *98
Governor's salary	3,800 00	3,482 76	317 24	1878	91
Secretary's salary	1,800 00	1,650 00	150 00	1874	261
Auditor and Land Commissioner's salary	3,000 00	2,750 00	250 00	1874	261
Treasurer's salary	3,500 00	3,208 26	291 74	1874	261
Attorney General's salary	2,500 00	2,291 62	208 38	1881	214
Adjutant General's salary	1,500 00	1,375 00	125 00	1878	91
Supt. Public Instruction's salary	2,500 00	2,291 65	208 35	1874	261
Railroad Commissioner's salary	3,000 00	2,750 00	250 00	1874	261
Insurance Commissioner's salary	2,000 00	1,833 15	166 85	1874	261
Librarian's salary	2,000 00	1,747 18	252 82	1881	225
Public Examiner's salary	3,500 00	3,208 30	291 70	1881	132
Janitor's salary	1,200 00	1,100 00	100 00	1877	85
Engineer's salary	1,200 00	1,100 00	100 00	1879	97
Fireman and day laborer	720 00	660 00	60 00	1879	97
Assistant engineer and night watchman	300 00	262 50	37 50	1879	97
Military store keeper	800 00	733 32	66 68	1881 1874	211 261
Messenger	600 00	550 00	50 00	1879	97
Governor's private secretary	1,500 00	750 00	750 00	1874	261
Governor's clerk	1,200 00	1,100 00	100 00	1881	210
Assistant secretary and statistician	2,000 00	1,833 26	166 74	1874	261
Secretary's clerk	1,000 00	916 63	83 37	1877	251
Auditor's chief clerk	2,000 00	1,833 28	166 72	1881	215
Land clerk	1,500 00	1,375 00	125 00	1878	92
Auditor's extra clerks	2,500 00	1,934 60	565 40	1878 1881	125 210
Deputy Treasurer	1,500 00	1,375 00	125 00	1874	261
Attorney General's clerk	316 63	216 63	100 00	1874	261
Public Instruction clerk	1,200 00	1,100 00	100 00	1874	261
Insurance Commissioner's clerk	1,200 00	900 00	300 00	1878	165
Superintendent fruit farm	1,000 00	833 33	166 67	1878	128
Clerk of Supreme Court	1,500 00	1,375 00	125 00	1874	261
Reporter Supreme Court	600 00	450 00	150 00	1874	261
Marshal Supreme Court	200 00	100 00	100 00	1874	261
Adjutant General's clerk	1,200 60	1,100 00	100 00	1881	212
Deputy Clerk Supreme Court	1,000 00	761 08	238 92	1881	215
State Land Agent	1,500 00	500 00	1,000 00	1881	114
Stationery and document clerk	600 00	550 00	50 00	1881	211
Extra clerk, Insurance Commissioner	300 00	225 00	75 00	1881	211
Salaries of Judges	73,238 88	57,189 49	16,049 39	1881 1881	92 *93
Executive contingent	3,000 00	2,376 62	623 38	1881	209
Secretary's contingent	400 00	400 00	....	1881	209
Auditor's contingent	500 00	498 70	1 30	1881	209
Treasurer's contingent	350 00	353 78	Ov'rdrawn	1881	209
Attorney General's contingent	1,000 00	736 31	263 69	1881	209
Extraordinary contingent	2,500 00	2,496 89	3 11	1881	221
Insurance Commissioner's contingent	300 00	266 73	33 27	1881	209
Railroad Commissioner's contingent	200 00	200 00	....	1881	209
Public Instruction contingent	500 00	497 16	2 84	1881	209
Library contingent	1,000 00	996 07	3 93	1881	112 209
Commissioner Statistics contingent	200 00	200 00	....	1878	88
Public Examiner's contingent	1,500 00	1,250 21	249 79	1881	209
Supreme Court contingent	500 00	655 40	Ov'rdrawn	1881	210
Selling State lands	5,000 00	4,132 28	867 72	1881	210
State University building	30,000 00	....	30,000 00	1881	225
University grounds extension	20,000 00	20,000 00	....	1881	226
First Hospital Insane, rebuilding	90,000 00	37,000 00	153,000 00	1881	222
First Hospital Insane, furnishing	12,000 00	2,000 00	10,000 00	1881	222
First Hospital Insane, heating, etc	25,000 00	9,000 00	16 000 00	1881	222
First Hospital Insane, repairs	5,000 00	3,000 00	2,000 00	1881	222
First Hospital Insane, water supply	15,000 00	15,000 00	....	1881	222
Second Hospital Insane, furnishing	5,000 00	5,000 00	....	1881	220
Second Hospital Insane, heating	14,000 00	14,000 00	....	1881	220

STATEMENT "P."—Continued.

Appropriations for 1881.

APPROPRIATIONS.	Amounts Appropriated.	Warrants drawn in 1881.	Balances Nov. 30, 1881.	LAW.	
				Year.	Page
2d Hospital Insane, kitchen	$3,000 00	....	$3,000 00	1881	220
2d Hospital Insane, cistern	500 00	....	500 00	1881	220
2d Hospital Insane, water supply	10,000 00	$5,000 00	5,000 00	1881	220
2d Hospital Insane, engine houses	5,000 00	5,000 00	....	1881	220
Idiots and imbeciles building	10,000 00	9,804 51	195 49	1881	189
†Reform School deficiency, repairs	7,500 00	7,500 00	....	1881	218
Grading the Winona Normal School grounds	950 00	950 00	....	1881	223
Enlarging St.Cloud Nor.School grounds	1 000 00	650 00	350 00	1881	216
†Employes 1st Hospital Insane	1,306 75	1,306 17	58	1881	224
Insane support, 1st Hospital	97,000 00	90,971 21	6,028 79	1881	218
Insane support, 2d Hospital	38,000 00	33,142 82	4,857 18	1881	218
Insane building, 2d Hospital, deficiency	2,000 00	2,000 00	....	1881	221
Reform School support	30,000 00	30,000 00	....	1881	218
Deaf, Dumb, Blind and Imbecile support	40,000 00	35,172 87	4,827 13	1881	218
Prison current expenses	50,000 00	40,119 15	9,880 85	1881	218
Winona Normal School support	14,000 00	14,000 00	....	1864 1877 1881	145 256 234
Mankato Normal School support	12,000 00	12,000 00	....	1869 1877 1881	14 256 234
St Cloud Normal School support	12,000 00	12,000 00	....	1869 1877 1881	16 256 234
Training schools and institutes	3,000 00	2,765 00	235 00	1877	132
†Agricultural societies	3,000 00	3,000 00	....	1868	33
†Repairs Mankato Normal School	10,000 00	10,000 00	....	1881	227
Historical Society	4,000 00	2,861 58	1,138 42	1881	218
†State costs	200 00	102 42	97 58	1881	210
Indexing laws	200 00	200 00	....	1881	210
Selecting Indemnity State lands	6,000 00	959 04	5,040 96	1881	210
Printing, advertising and binding	25,000 00	21,446 96	3,553 04	1881	210
Law library	18,200 00	15,025 82	3,174 18	1881	112 210
Binding law books	100 00	53 85	46 15	1881	210
Supreme Court reports, vol. 28	400 00	....	400 00	1881	210
Printing paper	3,000 00	3,000 00	....	1881	210
Stationery	3,500 00	3,407 77	92 23	1881	210 221
Attorneys' fees, bond adjustment	2,500 00	2,500 00	....	1881	118
†Publishing laws in newspapers	20, 00 00	19,973 00	27 00	1881	211
Requisitions	1,000 00	312 00	688 00	1881	210
†Registers' and Receivers' fees	500 00	182 65	317 35	1881	211
Arrest and conviction horse-thieves	3,000 00	3,000 00	....	1881	210
Sheriffs	3,500 00	2,803 41	696 59	1881	211
Wolf bounties	8,000 00	7,946 00	54 00	1881	211
Tree planting claims	5,000 00	2,548 00	2,452 00	1881	211
Express and mileage	1,000 00	430 41	569 59	1881	210
Fuel and lights	3,000 00	2,300 14	699 86	1881	210
Rent of Arsenal and deficiency	510 00	401 52	108 48	1881	210
State Board of Health	2,500 00	979 32	1,520 68	1881	210
†State Board of Equalization	1,000 00	974 00	26 00	1881	210
State Board of Immigration	10,000 00	9,552 65	447 35	1881	52 *90
Fish Commissioners	5,000 00	3,500 00	1,500 00	1881	211
State Dairymen's Association	500 00	....	500 00	1881	227
State Horticultural Society	1,000 00	131 00	869 00	1881	83
Minnesota National Guard	5,000 00	1,500 00	3,500 00	1881	149
High School Board	20,000 00	....	20,000 00	1881	187
Rebuilding Capitol	75,000 00	44,302 01	30 697 99	1881	232
Capitol roof, &c	7,000 00	....	7,000 00	1881	211
Boiler room, &c., Capitol	3,000 00	1,500 00	1,500 00	1881	212
Repairs and furnishing Capitol	3,000 00	248 62	2,751 38	1881	210
Furnishing Senate Chamber, &c., deficiency	3,000 00	2,673 16	326 84	1881	211
†Ex-Governors' portraits	750 00	500 00	250 00	1881	226

†Cancelled.

STATEMENT "P."—Continued.

Appropriations for 1881.

APPROPRIATIONS.	Amounts appropriated.	Warrants drawn in 1881.	Balance Nov. 30, 1881.	LAW.	
				Year.	Page.
Wadena Co., Verndale & Kindred Road	$ 400 00	$ 400 00	....	1881	‡865
Murray county	300 00	300 00	....	"	230
Watonwan county,	54 55	....	$ 54 55	"	229
Polk county	1,168 00	....	1,168 06	"	231
Crow Wing county	429 93	429 93	....	"	233
Pine county	750 00	750 00	....	"	229
Administering oaths	284 50	284 50	....	"	212
Reading proof	400 00	400 00	....	"	211 221
Governor's Guards	128 00	128 00	....	"	230
A. G. Perkins	18 50	18 50	....	"	228
Victor Hjortsberg	125 00	125 00	....	"	211
J. Q. Ward	14 50	14 50	....	"	231
John Patterson	75 00	75 00	....	"	232
Chippewa River Bridge, Swift Co	400 00	400 00	....	"	‡863
Chippewa River Bridge, Chippewa Co	600 00	....	600 00	"	‡861
Sauk River Bridge	400 00	....	400 00	"	‡859
Red Lake River Bridge	1,500 00	....	1,500 00	"	‡858
Yellow Medicine River Bridge	100 00	....	100 00	"	‡862
Big Cottonwood River Bridge	250 00	....	250 00	"	†819
Watonwan River Bridge	350 00	....	350 00	"	‡872
Blue Earth River Bridge	300 00	....	300 00	"	‡878
Long Prairie River Bridge	200 00	....	200 00	"	‡879
Pomme de Terre River Bridge	200 00	200 00	....	"	‡881
Rock River Bridge	400 00	....	400 00	"	‡874
Crow River Bridge	200 00	....	200 00	"	‡875
Cottonwood River Bridge	200 00	....	200 00	"	‡876
Redwood River Bridge	150 00	....	150 00	"	‡876
Spencer Brook Bridge	300 00	....	300 00	"	‡878
Springvale Bridge	300 00	300 00	....	"	‡878
Buffalo Run Bridge	300 00	300 00	....	"	‡867
Mustinka River Bridge	100 00	50 00	50 00	"	‡880
Lake Winona Bridge	400 00	....	400 00	"	‡869
Snake River Bridge	350 00	....	350 00	"	‡871
Minnesota River Bridge	300 00	300 00	....	"	‡870
Red River Bridge	400 00	400 00	....	"	‡868
DesMoines River Bridge, Cottonwood Co	500 00	....	500 00	"	‡867
Chisago Lake Bridge	500 00	500 00	....	"	‡860
St. Croix River Bridge	600 00	....	600 00	"	742
Verndale and Kindred S. R. Bridges	800 00	....	800 00	"	‖36
Albert Lea Roads	2,500 00	....	2,500 00	"	§71
Blue Earth River Bridge	500 00	....	500 00	"	‖275
Buffalo Creek bridge	150 00	....	150 00	"	‖168
Otter Lake bridge	500 00	....	500 00	"	§107
Moorhead bridge	2,500 00	....	2,500 00	"	§33
Watonwan River bridge	250 00	....	250 00	"	‖191
Kandivohi Lake bridge	500 00	....	500 00	"	§160
Chippewa River bridge	200 00	200 00	....	"	§108
Mantorville River bridge	300 00	....	300 00	"	§176
DesMoines River bridge, Cottonwood Co	600 00	....	600 00	"	§162
Chippewa and Lac qui Parle bridge	400 00	....	400 00	"	‖43
Lac qui Parle bridge	500 00	....	500 00	"	‖278
Rock River bridge	600 00	....	600 00	"	‖194
Chippewa River bridge	200 00	....	200 00	"	§29
Pomme de Terre River bridge	250 00	....	250 00	"	‖296
Rum River bridge	350 00	....	350 00	"	‖198
Lake Victoria bridge	400 00	....	400 00	"	‖252
Rock River bridge	1,500 00	....	1,500 00	"	‖307
Prairie Lake bridge	350 00	....	350 00	"	‖199
Anoka and Princeton road	175 00	....	175 00	"	‖176
Blue Earth River bridge	700 00	....	700 00	"	‖310
Buffalo Creek bridge	300 00	....	300 00	"	‖266
Rabbit River bridge	200 00	....	200 00	"	‖213
Elk River bridge	300 00	....	300 00	"	‖237
Cass County bridge	1,000 00	....	1,000 00	"	§139
Furniture and apparatus, University	2,000 00	....	2,000 00	"	133
Grading Prison yard	5,000 00	....	5,000 00	"	§170
Prison Fire apparatus	2,500 00	....	2,500 00	"	§170
State Board Immigration deficiency	6,000 00	2,286 57	3,713 43	"	§23
Deaf, Dumb and Blind Institution, enlarging grounds	5,000 00	....	5,000 00	"	§85
Mankato Nor. School, ground extension	3,000 00	....	3,000 00	"	§126
First Hospital Insane, north wing	10,000 00	....	10,000 00	"	‖103

STATEMENT "P."—Concluded.

Appropriations for 1881.

APPROPRIATIONS.	Amounts appropriated.	warrants drawn in 1880.	Balances November 30, 1880.	LAW.	
				Year.	Page.
First Hospital Insane, north wing, deficiency and architects	$3,000 00	....	$3,00 0 0	1881	‖103
First Hospital Insane temporary build'g	2,000 00	....	2,000 00	"	‖103
Winona Nor. School improving grounds	5,000 00	$250 00	4,750 00	"	‖281
Reform School cistern	2,000 00	....	2,000 00	"	‖320
Fitting Legislative Halls, Market House	1 000 00	977 81	22 19	"	§44
Furnishing offices Market House	2,000 00	383 57	1,616 25	"	§44
Investigating St. Cloud Normal School	871 54	870 42	2	"	§44
State Library gas fixtures	0 00	42 00	0	"	§44
Stationery deficiency	1,50 00	388 43	761 57	"	§189 §44
Publishing laws extra session	12,100 00	8,436 00	3,564 00	"	§44
Indexing laws extra session	000 00	....	200 00		§44
Appraising state prison machinery	204 57	854 57	....	"	§44
Wolf bounties deficiency	4,000 00	....	4,000 00	"	§197
Farmers' Board of Trade	1,000 00	....	1,000 00	"	§121
Printing, advertising and binding deficiency	6,000 00	500 00	5,500 00	"	§44
Mississippi River Commission	1,000 00	350 00	650 00	"	*90
Printing paper deficiency	1,000 00	535 00	465 00	"	§44
Binding law books deficiency	400 00	....	400 00	"	‖108
Law library contingent deficiency	300 00	110 50	189 50	"	§44
Minnesota repots Vol. 26, No. 2	1,000 00	1,000 00	....	"	‖100
Removing records to new capitol	500 00	....	500 00	"	§44
Adjutant General's clerk 1879 and 1880	1,000 00	1,000 00	....	"	§105
Bond adjustment expenses	4,000 00	1,658 50	2,341 50	"	§44
Attorney, 12th District	798 97	798 97	....	"	183
Publishing laws in newspaper, defic'y	4,684 80	3,782 00	902 80	......	§44
Interest fund	9,910 55	9,910 55	....	......	......
Permanent school fund	70,992 00	70,992 00	....	1875	138
General school fund	270,853 33	270,853 33	....	1873	77
General University fund	47,000 00	47,000 00	....	1868	4
Internal improvement land fund	41 80	41 80	....	1875	138
Sinking fund	100,000 00	100,000 00	....	"	138
School text book fund	14,340 46	14,340 46	....	1877	159
Overdrafts	159 18	....	....	......	......
Total appropriation of 1881	$1,740,072 44	$1,360,509 92	$ 379,562 52		
Appropriation of 1881 concelled	... .	....	620 93		
Appropriation of 1881 in force	....	....	$ 378,941 59		
Balance of appropriations of 1880 and prior years in force	....	....	40,385 42		
Total appropriations in force November 30th, 1881	....	$1,360,509 92	$ 419,327 01		
Warrant No. 14965 issued May 21. Refunded September 3	....	926 68	....		
		$1,361,436 60			

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*Extra session.
†Cancelled.
‡Special laws.
‖House files of extra session } not printed.
§Senate " " " " }

STATEMENT "Q."

SHOWING THE TOTAL DISBURSEMENTS BY WARRANTS ON THE TREASURY FOR THE FISCAL YEAR ENDING NOVEMBER 30, 1881.

LEGISLATIVE.

Senators' mileage	$1,081 45	
Senators' per diem	16,701 00	
Senators' postage	490 00	
Representatives' mileage	2,896 65	
Representatives' per diem	37,938 00	
Representatives' postage	1,150 00	
		$60,257 10

MISCELLANEOUS OF THE SENATE.

Reporters	$700 00	
Newspapers	870 45	
Engrossing and enrolling	616 05	
Printing Governors' message	400 00	
Pioneer Press Co., lithographing	71 00	
W. M. Campbell, for costs of election contest	1,091 00	
V. P. Kennedy, for expenses of election contest	582 90	
H. B. Wilson, expenses of investigating committee of the Insane Asylum	139 80	
Samuel T. Hillman, services as Stenographer of the asylum investigating committee	170 00	
Error in senate pay and mileage rolls, Jan. 14, 1881	40 20	
Bert. Leopold, services as page	5 00	
H. H. Moline, efficient services	100 00	
James Jameson, services as assistant clerk, three days	15 00	
Strong, Hackett & Co, hardware for senate chamber	42 53	
W. H. Millen, supplies for senate chamber	67 80	
St. Paul Book and Stationery Co., stationery for senate	334 65	
W. H. Millen, purchases ordered by resolution	219 20	
W. H. Millen, expenses in fitting &c., of desks in senate chamber	21 65	
C. A. Gilman, mileage as President of the Senate	22 50	
		$5,509 73

MISCELLANEOUS OF HOUSE.

Reporters	$600 00	
Newspapers	2,676 15	
Engrossing and enrolling	1,554 60	
Henry W. Stewart, engraving six copies of joint resolution	25 00	

D. D. Merritt & Co., stationery	448 25	
Pioneer Press Co., lithographing and engraving	191 25	
F. H. Dayton, serving subpœnas	25 00	
S. D. Hillman, services	145 00	
H. Collins, services as telegraphic operator	100 00	
M. C. Hall, services as clerk of Congressional Apportionment Committee	120 00	
George P. Johnson, services	100 00	
W. H. H. Johnson, services per diem as clerk of Legislative Committee on Legislative Apportionment	420 00	
Oscar Redding, additional per diem	75 00	
J. R. Howard, additional per diem	150 00	
H. L. Daniels, additional per diem	150 00	
H. S. Hurter, additional per diem	55 00	
Robt. Deakin, additional per diem	150 00	
Jeff, Davis Hudsen, balance per diem	35 00	
F. H. Dayton, purchases for cloak room	15 00	
F. H. Dayton, sundry bills for fitting up committee and wash room	184 15	
F. H. Dayton, purchase of lamps and other fixtures	12 00	
		$7,231 40

SENATE DEFICIENCY, 1881—REGULAR SESSION.

A. G. Wedge, transcribing Journal of Senate	$150 00	
		$150 00

HOUSE DEFICIENCY, 1881—REGULAR SESSION.

C. C. Wilson, repairs to desk, &c.,	$57 80	
		$57 80

LEGISLATIVE—EXTRA SESSION 1881.

Senators' mileage	$ 1,105 35	
Senators' per diem	11,050 00	
Representatives' mileage	3,234 75	
Representatives' per diem	24,550 00	
Representatives' postage	1,130 00	
		$41,070 10

MISCELLANEOUS OF SENATE, EXTRA SESSION, 1881.

Reporters	$600 00
Engrossing and Enrolling	276 25
W. H. Millen, mileage	63 00
H. H. Moline, "	60 90
C. M. Reese, "	34 80
A. P. Bryant, "	21 00
S. P. Jennison, "	12 00
A. G. Wedge, "	39 90
A. H. Bertram, "	16 80
O. A. Hallen, "	18 00
H. J. Hilbert, calculating interest	30 00
Thomas Cahill, " "	30 00

Patrick McManus, services as night watchman	100 00	
W. H. Mellen, articles for Senate cloak room	47 50	
S. P. Johnson, indexing Journal of Senate, extra session.	100 00	
		$1,450 15

MISCELLANEOUS OF HOUSE, EXTRA SESSION, 1881.

Reporters	$600 00	
Newspapers	1,599 25	
Engrossing and enrolling	468 90	
Witness fees and mileage for witnesses before the Judicial Committee	374 36	
F. H. Dayton, serving subpœnas	235 40	
J. P. West, serving subpœnas	8 00	
Geo. N. Hillman, copying Cox testimony	77 44	
Robt. Deakin, copying articles of impeachment	10 00	
DeCoster & Clark, use of articles	36 50	
Craig & Larkin, articles furnished	32 95	
J. C. Johnson, plumbing	8 00	
W. Carpenter, Lamps and oil	20 00	
C. C. Miles, repair of locks	1 50	
G. M. and S. Y. Hillman, stenographic reporters	84 00	
P. McManus, services as watchman	120 00	
E. L. Lane, services as Clerk of Committee on Enrollment	50 00	
		$3,726 30

LEGISLATIVE COMMITTEE. INVESTIGATING ST. CLOUD NORMAL SCHOOL.

1881			
Nov.	10.	F. H. Dayton, balance of Mileage and Expenses	$406 44
“	11.	Daniel Buck, per diem	20 00
“	“	J. N. Searles, “	20 00
“	“	W. H. Officer, “	20 00
“	“	C. S. Powers, per diem as reporter	40 00
“	“	H. R. Denny, per diem	20 00
“	“	Thomas Wilson, per diem	10 00
“	16.	E. R. Lathrop, witness	23 72
“	“	G. W. Wright, “	18 08
“	“	H. B. Wilson, “	15 08
“	21,	L. W. Collins, St. Cloud witnesses	69 44
“	“	“ Maine Prairie witnesses	46 90
“	29.	S. Meagher, witness	12 44
“	“	W. H. Harmon, witness	12 44
“	“	J. R. Geddes “	13 40
“	“	W. H. Sanders “	10 40
“	“	Mrs. Van Hulsen “	10 40
“	“	G. F. Cowing “	15 80
“	“	J. M. Richardson “	18 80
“	“	F. L. Webber “	16 20
“	“	J. W. Klepper “	29 12

Nov. 29.	W. W. Satterlee, witness	10 40	
" "	J. Moreis "	11 36	
			$870 42

EXECUTIVE—SALARIES OF OFFICERS AND CLERKS.

J. S. Pillsbury, Governor	$3,799 50	
Pennock Pusey, Governor's Private Secretary	875 00	
Frank H. Carleton, Governor's Clerk	1,325 00	
Executive Contingent	2,865 53	
		$8,865 03

SECRETARY OF STATE.

Fred von Baumbach, Secretary of State	1,800 00	
V. Hjortsberg, Secretary's Clerk	999 50	
F. S. Christensen, Assistant Secretary and Statistician,	2,000 00	
Secretary's Contingent	423 00	
A. W. Petren, Stationery and Documentary Clerk	550 00	
Statistician's Contingent	200 00	
		$5,972 50

AUDITOR AND LAND COMMISSIONER.

O. P. Whitcomb, Auditor and Land Commissioner	$3,000 00	
M. D. Kenyon, Chief Clerk	1,958 28	
Thomas Cahill, Land Clerk	1,188 00	
W. H. Kelley, Land Clerk	1,475 00	
Auditor's Extra Clerks	1,181 92	
Auditor's contingent	562 90	
		$9,366 10

STATE TREASURER.

Chas. Kittleson, Treasurer	$3,499 99	
Theodore Sander, deputy	1,500 00	
Treasurer's contingent	357 33	
		$5,357 32

ATTORNEY GENERAL.

Charles M. Start, Attorney General	$ 659 78	
W. J. Hahn, Attorney General	1,798 58	
W. A. Nicols, Attorney General's clerk	50 05	
E. F. Lane, Attorney General's clerk	183 31	
Attorney General's contingent	918 39	
		$3,610 11

ADJUTANT GENERAL.

H. P. VanCleve, Adjutant General	$1,500 00	
E. M. VanCleve, Adjutant General's clerk	2,100 00	
C. E. Davis, Military Storekeeper	776 64	
		$4,376 64

SUPERINTENDENT OF PUBLIC INSTRUCTION.

D. Burt, Superintendent	$1,875 03	
D. L. Kiehle, Superintendent	624 99	
C. H. Burt, Public Instruction Clerk	1,200 00	
Public Instruction contingent	565 31	
		$4,265 33

RAILROAD COMMISSIONER.

W. R. Marshall, Railroad Commissioner	$3,000 00	
Railroad Commissioner's contingent	200 00	
		$3.200 00

INSURANCE COMMISSIONER.

A. R. McGill, Insurance Commissioner	$1,999 80	
Chas. Shandrew, Insurance Commissionee's Clerk	1,000 00	
Extra clerk hire	225 00	
Insurance Commissioner's contingent	266 73	
		$3,491 51

PUBLIC EXAMINER.

Henry M. Knox, Public Examiner	$3,500 00	
Public Examiner's contingent	1,344 37	
		$4.844 37

STATE LIBRARY.

W. H. H. Taylor, State Librarian	$1,872 18	
Library contingent	1,000 41	
Library contingent, deficiency	110 50	
		$2,983 09

CLERK OF SUPREME COURT.

Samuel H. Nichols, Clerk of Supreme Court	$1,500 00	
W. A. Nichols, deputy clerk	761 08	
Supreme court contingent	691 73	
		$2,952 81

REPORTER OF SUPREME COURT.

George B. Young, reporter	$700 00

MARSHAL OF SUPREME COURT.

Samuel H. Nichols, marshall	$100 00

MISCELLANEOUS.

Geo. R. Morton, salary as engineer	$1,200 00	
Martin Nelson, assistant engineer	300 00	
Swan Swenson, " "	37 50	
Swan Swenson, fireman and day laborer	720 00	
Martin Nelson, " " "	480 00	
C. E. Chapel, janitor's salary	1,200 00	
George Symonds, messenger's salary	150 00	
Edward Hammon, " "	450 00	
J. W. Arctander, Attorney 12th District	798 97	
Extraordinary contingent	2,496 89	
		$7,833 36

EXECUTIVE CONTINGENT.

1880.			
Dec.	30,	Pioneer Press Company, advertising Thanksgiving proclamation	$ 10 50
1881.			
Jan.	4,	Volkzeitung Company, advertising election of electors	6 00
"	5,	J. Hudson, cleaning House and Senate Halls	38 50

Jan	12,	Northwestern Chronicle, advertising Thanksgiving and election proclamations	8 62
“	17,	Charles E. Chapel, postage stamps, etc	32 76
“	18,	Minneapolis Tribune, Company, advertising Thanksgiving proclamation	6 25
“	27,	A. R. McGill, Postage stamps for Insurance Department	25 00
Feb.	4,	George R. Morton, flagstaff, &c., for capitol building	84 08
“	17,	W. H. H. Taylor, freight and expressage on books for State Library	62 10
“	19,	F. H. Carleton, postage stamps, &c	89 10
“	23,	George R. Morton, putting ropes on flagstaff	5 00
“	26,	Pioneer Press Company, lithographing letter heads	21 00
March	7,	E. Hammon, special watchman during session 1881	100 00
“	7,	P. B. Walker, expenses Mississippi River Commission	25 00
“	24,	F. H. Dayton, Sergeant at Arms, disbursements of Committee of Investigation St. Cloud Normal School	54 60
“	24,	F. H. Dayton, on account of mileage, &c., for above Commission	120 76
“	24,	Miss Farquhar, witness fees for attending above investigation	10 40
“	24,	Lizzie Sheerer, witness fees for attending above investigation	14 24
1881.			
Mar.	29.	M. D. Kenyson, Postal Guide for year ending Dec. 31, 1881	1 50
Apr.	13.	Prince & Shandrew, insurance on law library	150 00
“	21.	C. E. Chapel, pitchers, etc. for state officers	33 30
“	23.	C. E. Chapel, truck, telegrams, etc	33 77
May	2.	Patrick McManus, services as special watchman at Market house	114 00
“	4.	Pennock Pusey, expenses for visiting judges for Bond Com.	9 05
“	12.	C. E, Chapel, postage and subscription to Daily Globe	62 40
“	26.	O. A. Pray, appraising machinery at State Prison	176 00
“	28.	Daily Globe, advertising application for pardon of Thomas Donahue, etc	3 25
June	29.	Pioneer Press Co., requisition blanks and advertising pardon T. Donahue and Fritz Waller	54 25
July	1.	Hans Matson, newspapers for legislature	36 00
“	20.	C. E. Chapel, sundries	11 75
“	20,	A. Tibbetts, expenses of Indian delegation from Aitken	68 10
“	21,	G. K. Barnes, fares of Indians and others from Aitkin	37 45
“	25,	C. E. Chapel, postage stamps	60 00
“	26,	John Coakley, sawdust	2 50
“	26,	John Coakley, hauling chairs	1 00
“	26,	John Coakley, hauling chairs	1 00
Aug.	3,	C. F. Yeager, expenses inspecting boilers	98 22
“	9,	Joseph Robert, services as interpreter	20 00
Aug.	19.	W. H. H. Taylor, sundry expenses of State Library	14 75
“	23.	G. S. Smith, one volume encyclopedia	6 00
“	26.	C. E. Chapel, stamps, etc	45 00

Aug.	26.	E. E. Taylor, freight, etc. on books	3 95
Sept.	2.	Western Union Telegraph Co., telegrams	17 01
"	3.	St. Paul Dispatch Co., advertising iron for sale	3 60
"	6.	Pennock Pusey, for express charges paid on books for law library	14 05
"	13.	W. H. H. Taylor, freight and drayage on books	4 58
"	14.	N. W. Telephone Exchange Co., use of telephone July and August	16 66
"	14.	Carl Gutherz, for portrait of Ex-Gov. Marshall	200 00
"	19.	Jno. G. Hinkel, sprinkling streets	16 00
Oct.	1.	Daily Globe, advertising application for pardon	2 25
"	3.	W. H. H. Taylor, express charges and freight on law library books	15 00
"	4.	Western Union Telegraph Co., telegrams	6 39
"	5.	Pioneer Press Co., record "G." etc	33 90
"	7.	P. Butler, hauling cannon	13 00
"	8.	C. E. Chapel, moving safes, etc. from capitol ruins to Market House	106 15
"	8.	C. E. Chapel, material for draping Market House	97 21
"	10.	Martin McNuty, hauling sawdust for legislative halls	10 00
"	11.	Kennedy Bros., amunition for cannon	65 00
"	11.	C. E. Chapel, postage, etc	58 20
Oct.	12,	E. Hammon, removing sawdust from legislative halls	16 00
"	18,	W. H. Taylor, freight, etc., on library books	15 00
"	21,	Warner & Foote, state map	15 00
"	28,	A. Alder, expenses of taking Governor's proclamation of special election to Mantorville	5 00
"	31,	Jno. D. Leonard, city directory	4 00
Nov.	7,	Pioneer Press Co., advertising application for pardon	3 50
"	9,	American Express Co., expressage on law library books	33 60
"	9,	C. E. Chapel, expenses of state agent to New Ulm, etc	11 50
"	10,	W. H. H. Taylor, freight on books	9 00
"	12,	McCarthy & Donnelly, crape, etc., for draping capitol	15 00
"	16,	F. H. Carleton, stamps	40 00
"	17,	Pioneer Press Co., index to Executive Record, etc	8 25
"	17,	Charles McC. Reeve, investigating charges against prison warden	30 00
"	30,	Jno. Matheis, material for draping capitol	24 30
"	30,	Western Union Telegraph Co., telegrams	17 82
"	30,	A. Chadwick, repairing lightning rods on old capitol	6 30
"	30,	Geo. R. Morton, amount paid for fare of Dr. Wilhelm to Chicago	14 50
"	30,	C. E. Chapel, postage, &c	88 65
"	30,	M. D. Kenyon, recording right of way deeds, &c., in law office records	20 83
"	30,	W. H. Leonard, expenses as delegate to national conference of charities	50 00
"	30,	Evening Journal, advertising application for pardon	1 13
			$2,865 53

SECRETARY'S CONTINGENT.

1880.			
Dec.	22.	Fred von Baumbach, postage	23 00
1881.			
March	7	Fred von Baumach, postage, &c.	54 75
"	11	Daily Globe, one year	8 40
"	15	Pioneer Press, one year	12 00
"	15	C. E. Chapel, postage stamps	14 00
"	17	N. W. Telephone exchange company, rent of telephone for State departments, February	8 33
"	17	C. E. Chapel, paid for cleaning carpet in office at capitol	14 00
"	22	Julius Faber, assorting laws, &c	25 00
"	28	Mallgren & Cowham, rubber stamps	6 00
"	29	George R. Morton. postage, &c	29 00
"	29	M. D. Kenyon, postal guide one year	1 50
April	6	F. von Baumbach, newspapers, postage and express charges	12 50
"	22	C. E. Chapel, freight, &c., on books	15 77
May	4	Die Volkszeitung, one year	9 00
"	6	Myers & French, for clock	15 00
June	2	C. E. Chapel, postage stamps, &c.	24 40
"	8	American Exchange Company, express charges	2 90
July	19	F. von Baumbach, stamps, freight and express	19 50
Aug.	18	F. von Baumbach, stamps, freight and express	26 50
Sept.	9	F. von Baumbach, stamps, freight and express	11 60
Oct.	13	C. E. Chapel, stamps, drayage and express	28 50
"	21	Warner & Foote, State map	15 00
"	31	Jno. D. Leonard, city directory	3 00
Nov.	10	C. V. Spregel, subscription to "Herald"	9 00
"	10	F. von Baumbach, stamps	21 00
"	30	V. H. Jortsberg, stamps	13 35
			423 00

EXCHANGING DOCUMENTS.

1881.			
Feb.	18	F. S. Christensen, postage	6 83

AUDITOR'S CONTINGENT

1880.			
Dec.	28,	Thos. Hoben, freight and drayage on letter case	3 35
"	30.	"Le Canadian," subscription one year	2 50
1881.			
Jan.	3,	N. W. Telegraph Co., telegrams, Nov. and Dec	4 65
"	7,	C. E. Chapel, postage deposit	5 00
"	24,	Mrs. S. M. Chapel, washing towels, etc	4 50
"	28,	M. D. Kenyon, stamps	8 50
"	28,	C. E. Chapel, stamps	15 00
Feb.	15,	Thos. Cahill, stamps	16 00
March	1,	C. E. Chapel, towels and express charges, etc.. for office	3 50
"	1,	N. W. Telegraph Co., telegrams, Feb	1 20
"	9,	C, E. Chapel, postal cards and stamps	15 00
	10,	O. G. Miller, printing postal card receipts	2 00

Mar.	11,	Daily Globe, one year	8 40
"	15,	Pioneer Press, one year	12 00
"	18,	Melgren & Cowham, land commissioner's seal	6 00
"	25,	Pioneer Press Co., warrant books &c	21 70
"	29,	M. D. Kenyon, postal guide	1 50
April	2,	Am. Express Co., express charges on reports to counties, &c	18 15
"	4,	N. W. Telephone Co., use of telephone for State Departments, in March	8 33
"	5,	U. S. Express Co., charges on reports to sundry counties	3 95
"	6,	M. D. Kenyon, Copps "Land Owner," "Mineral Lands" and "Settlers' Guide."	8 00
"	11,	Geo. R. Morton, express charges on certificats of lands sent to counties, &c	2 65
"	18,	O. G. Miller, printing certificates of taxable land	4 25
"	20,	Geo. R. Morton, stamps and postal cards	24 50
"	28,	De Coster & Clark, repairing desk	1 50
May	3,	Edward Hammon, postage stamps	27 00
"	4,	N. W. Telegraph Co., telegrams, April	6 81
"	5,	Pioneer Press Co., printing slips of land sale advertisement and tax form, No. 16½	6 50
"	21,	Wm. H. Kelley, express charges on land sale lists, &c	6 63
June	4,	C. E. Chapel, stamps, &c	7 00
"	9,	C. E. Chapel, postage stamps	15 00
"	11,	M. D. Kenyon, postage stamps	4 50
"	14,	C. E. Chapel, postage deposit and stamps	19 00
"	22,	West Publishing Co., subscription to N. W. Reporter and Legal Record	6 00
"	29,	Pioneer Press Co., draft book, &c	23 75
July	5,	C. E. Chapel, for telephone and telegram	8 58
"	6,	American Express Co., charges on land lists	1 60
"	20,	Thomas Cahill, coloring maps, Otter Tail county	7 00
Aug.	2,	American Express Co., charges on sundry packages	2 50
"	23,	C. E. Chapel, stamps and express charges	16 95
Sept.	2,	C. E. Chapel, telegram and express charges	1 09
"	3,	Daily Dispatch, daily seven months	3 95
"	7,	Auerbach, Finch & Van Slyck, cleaning carpet	3 50
"	14,	Arthur L. Colton, half dozen portfolio files	5 50
"	22,	C. E. Chapel, stamps, &c	22 75
"	23,	Pioneer Press Co., warrant book, &c	20 50
Oct.	3,	Sherwood Hough, letter book	3 00
"	4,	W. U. Telegraph Co., telegrams	1 89
"	4,	G. S. Smith, 4 vols. Minn. Laws	27 00
"	19,	M. D. Kenyon, postal cards	5 00
"	20,	Warner & Foote, State map	15 00
"	24,	W. H. Kelley, stamps and express charges	16 20
"	29,	John D. Leonard, City Directory	3 00
Nov.	2,	W. U. Telegraph Co., telegrams, October	1 97
"	9,	E. Hammon, stamps, &c	20 50
"	17,	Pioneer Press Co., binding land books	2 00

Nov. 17,	American Express Co., charges on land lists to counties....	2 75
" 25,	C. E. Chapel, postage deposit......	5 00
" 30,	E. Hammon, stamps and express charges................	23 00
" 30,	W. U. Telegraph Co., telegrams, November............	3 85
" 30,	C. E. Chapel, stamps, &c..............................	14 50
		$562 90

TREASURER'S CONTINGENT.

1881.		
Jan. 26,	Charles Kittleson, stamps.............	3 55
March 10,	Charles Kittleson, stamps..................................	18 00
" 11,	Daily Globe, one year...	8 40
" 12,	Charles Kittleson, telegrams in regard to report..........	1 65
" 15,	Pioneer Press, one year....................................	12 00
" 19,	Charles Kittleson, postal cards, &c...	14 25
" 25,	Pioneer Press Co., check book..............	8 50
" 29,	M. D. Kenyon, postal guide, one year,...................	1 50
April 4,	Charles Kittleson, postage and newspapers..............	12 50
" 6,	Charles Kittleson, letter press, &c........................	14 00
" 22,	Charles Kittleson, stamps..................................	7 50
May 10,	Charles Kittleson, Daily Despatch, one year..............	6 60
" 18,	Pioneer Press Co., check book..............................	18 00
June 4,	Charles Kittleson, Commercial and Financial Chronicle, one year..	10 20
" 23,	Charles Kittleson, postage stamps..........	14 00
Aug. 16,	Charles Kittleson, postage, &c............................	10 10
Sept. 17,	Charles Kittleson, postage stamps.........................	9 00
Oct. 3,	N. W. Telephone Ex. Co., rent of telephone for State Department, September........	8 33
" 5,	Pioneer Press Co., book of receipts, &c..................	13 75
" 21,	Warner & Foote, State map................................	15 00
" 28,	Charles Kittleson, stamps, &c.............................	8 50
Nov. 26,	Charles Kittleson, stamps..................................	20 00
" 30,	Charles Kittleson, extra clerk hire, &c...................	122 00
		$357 33

ATTORNEY GENERAL'S CONTINGENT.

1880.		
Dec. 31,	C. M. Start, attending court..............................	$60 00
1881.		
Jan. 5,	N. W. Telephone Co., use of telephone for State offices, December...	8 33
" 18,	West Publishing Co., subscription N. W. Reporter and binding...................	5 75
" 31,	C. M. Start, attending court and postage................	43 00
March 7,	C. M. Start, attending court and postage................	73 00
April 2,	W. J. Hahn, postage, stamps, &c.........................	6 00
" 5,	C. M. Start, attending court................................	20 00
" 29,	W. J. Hahn, for book case, attending court and postage...	118 65
" 30,	J. N. Castle, services at trial of H. Hutchinson, Pine county	50 00

May	16,	Jas. B. Beals, fees as referee	15 00
June	1,	W. J. Hahn, attending court	50 00
"	22,	West Publishing Co., 2 vols. Minn. Digest, N. W. Reporter and binding	17 75
"	22,	J. N. Castle, attorney in case, State vs. Hutchinson	50 00
July	1,	W. J. Hahn, attending court and postage	13 00
"	15,	Geo. R. Morton, locks on drawers	2 30
Aug.	11,	W. J. Hahn, attending court and postage	148 40
Sept.	1,	W. J. Hahn, attending court	30 00
"	30,	W. J. Hahn, postage, telegram, &c	8 38
Nov.	3,	W. J. Hahn, attending court	107 00
"	3,	Jno. D. O'Brien, fee trying murder case at Brainerd	60 00
"	30,	W. J. Hahn, attending court and postage	23 50
"	30,	N. W. Telephone Ex. Co., rent of telephone, November	8 33
			$ 918 39

STATE COSTS.

1881.			
Feb.	9,	Fayette Marsh, copies of papers, State vs. Mower	$6 00
March	7,	A. H. Brayton, costs in case Brayton vs. Richardson	51 35
May	20,	W. A. Nichols, copying papers, State vs. Waholz & Lawlor	100 30
Nov.	10,	R. N. McLaren, fees, State vs. Pine City Lumber Co	2 12
			$159 77

PUBLIC INSTRUCTION CONTINGENT.

1881.			
Jan.	31	D. Burt, stamps, express charges, &c	$50 46
Mar.	10	D. Burt, stamps	30 10
"	11	H. P. Hall, Daily Globe, 3 months	2 10
"	15	Pioneer Press, one year	12 00
"	29	M. D. Kenyon, Postal Guide	1 50
April	8	D. Burt, stamps, &c	44 36
May	10	N. W. Telephone Exchange Company, use of telephone for State departments, April	8 33
"	12	D. Burt, postage and travelling expenses	69 95
June	21	D. Burt, postage and travelling expenses	34 75
July	5	D. Burt, stamps, expressage, &c	14 26
"	20	D. Burt, sundry expenses	46 85
Aug.	2	D. Burt, stamps, &c	37 40
"	9	D. Burt, stamps, telegrams, &c	34 50
"	17	D. Burt, travelling expenses, &c	17 25
"	30	D. Burt, postal cards, &c	9 50
Sept.	23	D. L. Kiehle, travelling expenses, &c	64 20
Nov.	9	D. L. Kiehle, travel, postage, &c	57 80
"	30	D. L. Kiehle, travel, postage, &c	30 00
			$565 31

LIBRARY CONTINGENT.

1880.			
Dec.	28,	W. H. H. Taylor, freight on books	$4 34
1881.			
March	8,	W. H. H. Taylor, postage and express charges	30 00

Mar	11,	Daily Globe, one year	8	40
"	12,	E. E. Taylor and Geo. H. Lewis, removing books, etc	40	00
"	15,	Pioneer Press Co., Daily one year	12	00
"	"	Fairbanks, Morse & Co., postoffice scales	8	25
"	17,	W. H. H. Taylor, paid for cleaning carpet in Library	20	00
"	"	W. H. H. Taylor, frieght and express charges on books	20	00
"	24,	W. H. H. Taylor, freight and express charges on books	25	00
"	25,	West Publishing Company, brands for Library	8	00
"	29,	M. D. Kenyon, Postal Guide	1	50
April	2,	E. E. Taylor, services moving books	13	75
"	4,	W. H. H. Taylor, express charges and freight on books	25	00
"	7,	E. E. Anderson, services examining books	7	50
"	9,	West Publishing Company, self-inking stamp	5	00
"	16,	E. E. Taylor, examining books	15	00
"	21,	W. H. H. Taylor, express charges and freight on books	42	33
May	5,	Thos. O'Mara, freight and drayage on books	10	57
"	9,	W. H. H. Taylor, freight and express charges on books	25	00
"	9,	West Publishing Company, repairing books injured in fire,	43	30
"	20,	W. H. H. Taylor, services examining books in Library	5	00
"	20,	W. H. H. Taylor, postage and express charges	25	00
May	23,	W. H. H. Taylor, table for library	18	00
"	27,	do freight and drayage on books	54	76
"	28,	do insurance on books	150	00
"	31,	do freight and express charges	15	00
June	2,	Myers & Finch, clock for library	12	00
"	4,	W. H. H. Taylor, paid for examining books	23	00
"	4,	T. O. Mara, freight and drayage on books	9	37
"	4,	N. W. Telephone Ex. Co., use of telephone for State Departments, May	8	33
"	4,	West Publishing Co., circulars and labels	12	00
"	7,	T. O. Mara, freight &c. on books	14	60
"	8,	W. H. H. Taylor, labor &c. on shelving	15	00
"	9,	do chairs &c. for library	19	25
"	11,	do paid sundry persons for examining books	35	00
"	13,	do freight and drayage on books	4	96
"	17,	Prince & Shandreu, insurance	150	00
"	18,	W. H. H. Taylor, labor in library and examining books	27	00
"	22,	do paid for branding books	6	25
"	27,	do drayage on books	6	59
"	30,	Anderson Hubbard, labor	7	50
July	6,	W. H. H. Taylor, examining books	6	87
"	7,	T. O. Mara, freight and drayage on books	3	74
"	15,	W. H. H. Taylor, labor in library	6	25
			$1,000	41

LIBRARY CONTINGENT DEFICIENCY.

1881.				
Nov.	14	Warner & Foote, State map	15	00
"	16	Jno. D. Learned, city directory	3	00
	21	W. H. H. Taylor, expressage on books	10	00

Nov. 30	E. E. Taylor, services making catalogue....................	7 50
" 80	Prince & Shandrew, insurance on books................. .	75 00
		110 50

COMMISSIONER OF STATISTICS CONTINGENT.

1881.		
Jan. 26	F. S. Christensen, stamps and express charges.............	$ 12 50
Feb. 16	F. S Christensen, postage.......	12 00
April 29	F. S. Christensen, stamps.................................	12 00
May 23	V. Hjortsberg, services compiling statistics................	25 00
June 20	F. S. Christensen, postage stamps.........................	15 00
Aug. 1	V. Hjortsberg, compiling statistics..................	50 00
Sept. 24	A. W. Petreen, labor on statistics..............	30 00
Oct. 31	V. Hjortsberg, compiling statistics, &c......................	31 50
Nov. 30	A. W. Petreen, compiling statistics.......................	12 00
		200 00

INSURANCE COMMISSIONER'S CONTINGENT.

1881.		
March 7,	Chas. Sandrew, postage	$ 50 00
" 11,	H. P. Hall, Daily Globe, one year....................... ..	8 40
" 15,	Pioneer Press Company, Daily, one year...	12 00
April 21,	Chas. Sandrew, postage...............	40 00
May 9,	C. E. Chapel, washing towels for office.............	5 00
July 5,	Chas. Sandrew, postage stamps...................... ...	40 00
Oct. 3,	Chas. Sandrew, postage stamps.........................	40 00
" 31,	John D. Leonard, City Directory........................	3 00
Nov. 3,	N. W. Telephone Exchange Company, rent of telephone for October..........................	8 33
" 30,	Chas Sandrew, postage................................	60 00
		$266 73

RAILROAD COMMISSIONER'S CONTINGENT.

1881.		
March 7,	C. F. Solberg, services..................................	$ 80 00
" 22,	W. R. Marshall, postage................................	25 00
Oct. 5,	W. R. Marshall, postage................................	25 00
Nov. 19,	W. R. Marshall, services................................	70 00
		$200 00

PUBLIC EXAMINER'S CONTINGENT.

1880.		
Dec. 31.	Henry M. Knox, clerk hire, &c., December...............	$ 94 16
1881.		
March 7,	Henry M. Knox, clerk hire and expenses, Jan. and Feb....	176 16
April 4,	Henry M. Knox, clerk hire, March............	83 34
May 2,	Henry M. Knox, clerk hire and expenses, April............	127 83
" 31,	Henry M. Knox, clerk hire and expenses, May.............	144 08
July 2,	Henry M. Knox, clerk hire and expenses, June.......	139 70
Aug. 1,	Henry M. Knox, clerk hire and expenses, July..............	137 98
Sept. 2,	Henry M. Knox, clerk hire and expenses, August....... ..	146 13
Oct. 3,	Henry M. Knox, clerk hire and expenses, September.......	114 83

Nov.	2,	Henry M. Knox, clerk hire and expenses, October	96 83
"	30,	Henry M. Knox, clerk hire and expenses, November	83 33
			$1,344 37

EXTRAORDINARY CONTINGENT.

1881.			
March	4,	M. McNulty, removing records, &c. from Governor's rooms during the fire	$ 8 00
"	10,	M. Nelson, paid sundry persons for removing books, &c. from Capitol	31 10
"	10,	D. Burt, drayage, &c., removing records from the Capitol.	10 00
"	10,	S. M. Van Cleve, removing records, furniture, &c. from Capitol	6 00
"	12,	Deering, Milliken & Co., flag	30 00
"	12,	C. Pierce, hauling books from church near Capitol	5 00
"	12,	Geo. H. Lewis, removing records, &c. from Capitol	6 25
"	12,	A. S. Nichols, " " " " "	15 00
"	12,	Albert Carter, " " " " "	2 00
"	12,	S. Butler, removing property from Capitol	10 00
"	12,	M. D. Kenyon, drayage paid for removing books and furniture	6 25
"	12,	H. A. Hageman, removing records, &c. from Capitol	25 00
"	12,	Geo. Crooks, removing records, &c. from Capitol	6 00
"	15,	John Matheis, fitting rooms in Market House	603 71
"	15,	C. E. Chapel, paid by Governor for removing records from Capitol	250 00
"	16,	J. F. Williams, paid for hauling property of State Departments from church	15 00
"	16,	A. R. McGill, expenses removing records, &c. of Insurance Commissioner	18 75
"	16,	Charles Kittleson, expenses for removing records, &c.	6 75
Mch.	17,	Anthony Hynes, watchman at Capitol grounds since the fire,	13 50
"	28,	John Matheis, shades for library	8 40
"	"	" carpets for public examiner's room	55 07
"	"	" carpets &c. for supreme court rooms	309 82
"	"	" shade cloth for Adj. Gen.'s office	50
Apr.	7,	H. H. Shroeder, reparing furniture of the several dep'ts	69 05
"	11,	Am. Express Co., charges on books sent to Sec. of State	13 45
"	21,	DeCoster & Clark, furnishing supreme court room, library &c.	352 75
"	22,	Geo. R. Morton, paid for cleaning basement at market house,	25 13
"	23,	W. W. Parker, repairing desk in Adj. Gen.'s office	16 50
"	"	Pollock, Donaldson & Ogden, glass and other wares for offices	80 70
"	"	Martin DeVine, fireman for legislature in market house	7 50
"	"	J. Schillo & Co., goblets &c. for Secretary's office	1 65
May	2,	E. F. Poborne, heating market house	139 40
"	6,	DeCoster & Clark, desks &c. for the legislature	110 00
"	"	" chairs &c. for Secretary's office	32 00
"	"	" repairing furniture for offices	15 75
"	"	" repairing chairs for Ins. Com'r	9 00

May	18,	Am. Express Co., charges on books sent Sec. of State......	4 20
Aug.	11,	Wiley & Carlson, labor and material, fixing offices in market house..	177 71
			$2,496 89

SALARIES OF JUDGES.

James Gilfillan, Chief Justice, salary to Nov. 30th, 1881............	$4,000 00
John M. Berry, Associate Justice, salary to Nov. 30th, 1881.........	5,999 97
F. R. E. Cornell, Associate Justice, salary to May 23d, 1881........	1,922 24
Greenlief Clark, Associate Justice, salary to Sept. 30th, 1881........	2,188 88
F. M. Crosby, Judge First District, salary to Nov. 30th, 1881.......	3,266 64
W. Wilkin, Judge Second District, salary to Aug. 31st, 1881.......	2,183 30
Wm. Mitchell, Judge Third District, salary to Nov. 30th, 1881......	3,626 39
Chas. M. Start, Judge Third District, salary to Nov. 30th, 1881.....	2,518 00
A. N. Young, Judge Fourth District, salary to Nov. 30th, 1881.....	3,266 64
C. E. Vanderbergh, Judge Fourth District, salary to Sept. 30th, 1881	3,100 00
F. S. Buckham, Judge Fifth District, salary to Nov. 30th, 1881.....	2,300 30
D. A. Dickenson, Judge Sixth District, salary to Nov. 30th, 1881....	3,461 10
James L. McKelvy, Judge Seventh District, salary to Oct. 1st, 1881..	3,100 00
J. L. McDonald, Judge Eighth District, salary to Nov. 30th, 1881...	3,266 64
E. St. Julien Cox, Judge Ninth District, salary to Nov. 30th, 1881..	3,266 56
J. Q. A. Farmer, Judge Tenth District, salary to Nov. 30th, 1881...	3,266 63
O. P. Stearns, Judge Eleventh District, salary to Nov. 30th, 1881...	3,474 97
John H. Brown, Judge Twelfth District, salary to Nov. 30th, 1881..	2,600 00
H. R. Brill, Judge Second District, salary to Nov. 30th, 1881.......	3,266 64
O. Simons, Judge Second District, salary to Nov. 30th, 1881........	3,266 64
M. J. Severance, Judge Sixth District, salary to Nov. 30th, 1881....	1.506 92
	$64,848 55

SUPREME COURT CONTINGENT.

1881.			
Jan.	17,	S. H. Nichols, postage stamps............................	$ 18 00
Feb.	3,	N. W. Telephone Ex. Co., use of telephone, January......	8 33
Mar.	14,	C. E. Chapel, cleaning carpet............................	10 00
"	19,	S. H. Nichols, copying opinions, &c.......................	86 50
"	23,	Pioneer Press Co., daily one year.........................	12 00
April	4,	Albert Miller, cleaning windows...........................	2 00
"	9,	M. D. Kenyon, "Postal Guide".............................	1 50
"	12,	Ed. Hammond, postage stamps..............................	18 00
"	21,	G. R. Morton, towels, &c..................................	7 25
May	6,	Myers & Finch, clock for court room......................	25 00
"	18,	Pioneer Press Co. books for clerk's office................	77 00
"	21,	W. A. Nichols, postage stamps............................	6 00
June	13,	S. H. Nichols, copying opinions, &c.......................	122 95
"	23,	W. A. Nichols, stamps.....................................	25 00
July	16,	West Publishing Co., blank book..........................	2 50
"	20,	J. M. Thompson, pens......................................	3 00
Aug.	3,	W. A. Nichols, stamps.....................................	19 00
Sept.	21,	C. E. Chapel, stamps......................................	25 00
Oct.	8,	S. H. Nichols, copying opinions, &c.......................	160 07

Oct	10,	West Publishing Co., 8 vols. N. W. Reporter	28 00
"	21,	Warner & Foot, State map	15 00
"	31,	Jno. D. Leonard, city directory	3 00
Nov.	9,	W. A. Nichols, Stamps	16 00
			$691 73

PRINTING, ADVERTISING AND BINDING.

1880.			
Dec.	24,	A. W. McKinstry, advertising sale forfeited school lands, Rice county	$6 75
"	24,	Wheaton & Reynolds, advertising land sale, Chippewa county	6 74
"	30,	Pioneer Press Company, advertising election district	4 50
"	31,	Pioneer Press Company, printing for the departments	180 20
1881.			
Jan.	3,	J. K. Moore, on account third-class work	600 00
"	7,	Matteson & Lewark, advertising land sale, Wabasha county,	5 25
"	10,	Pioneer Press Company, advertising Treasurer's report	633 00
"	11,	St. Paul Dispatch Company, advertising Treasurer's report.	633 00
"	13,	P. J. Gresin, books for House and Senate, etc	141 00
"	14,	Minneapolis Tribune Company, advertising land sale, Hennepin county	5 25
"	18,	Merchants' Lithographing Company, maps for Legislative Manual	148 00
"	29,	Glencoe Register, advertising land sale, McLeod county	5 25
"	29,	G. Fales, balance on contract, 1880	657 70
Feb	2,	"S. Kafferen," advertising election of electors	5 63
"	8,	Pioneer Press Company, books for Treasurer's office	80 50
"	8,	S. A. Clewell, on account fifth-class work	197 90
"	10,	J. K. Moore, on account third-class work	500 00
"	16,	Pioneer Press Company, printing blanks	91 00
"	24,	David Ramaley, examining State printing	60 00
"	28,	Platt B. Walker, advertising stumpage sale, 1880	4 50
March	4,	J. W. Cunningham, on account second-class work	2,000 00
"	4,	J. K. Moore, on account second-class work	200 00
"	19,	J. W. Cunningham, balance on first and second classes	3,102 54
"	28,	S. A. Clewell, on account fifth-class work	500 00
"	29,	J. K Moore, on account third-class work	3,000 00
April	6,	W. A. Willard, map of St. Vincent	6 00
"	11,	P. J. Gresin, blank books for Superintendent Public Instruction	15 50
"	29,	P. J. Gresin, rebinding and drying books injured in fire	325 00
May	4,	S. A. Clewell, on account fifth-class work	187 50
"	5,	R. C. Mitchell, advertising land sale, 1880, St. Louis Co.	5 00
May	12,	J. K. Moore, on account third class work	750 00
"	12,	G. Fales, 400 copies Ex. Docs., 1879	105 11
"	12,	Pioneer Press Co., printing for legislature	65 89
"	18,	Pioneer Press Co., journal for State Treasury	30 00
	26,	J. W. Cunningham, on account second class work	500 00
"	27,	D. Ramalay, measuring work in Secretary's office	83 00

May	27,	Bennett & Lathrop, advertising land sale, Yellow Medicine County	5 25
"	28,	Sawbridge & Brockelhurst, advertising land sale, Otter Tail County	5 25
"	31,	S. A. Clewell, on account fifth class work	613 00
"	31,	W. J. Munro, advertising land sale, Stevens County	4 55
June	1,	J. H. Sheets, advertising land sale, Big Stone County	2 65
"	1,	W. G. Mitchell & Co., advertising land sale, Kittson Co.	5 25
"	3,	J. W. Cunningham, balance due on second class work	437 44
"	8,	Spring Valley Vidette, advertising proposals for printing	12 60
"	8,	Minneapolis Tribune Co., advertising proposals for printing	16 20
"	8,	C. F. Hendryx, advertising proposals for printing	16 88
"	8,	Tule & Capehart, advertising land sale, Clay County	5 25
"	8,	L. Osborn, advertising land sale, Clay County	3 60
"	8,	Ada Alert, advertising land sale, Polk County	5 25
"	8,	Pioneer Press Co., twenty copies paper book for Attorney General	204 00
"	8,	James Aiken, advertising land sale, Redwood County	5 25
"	8,	H. E. Cooke, advertising land sale, Polk County	5 25
"	10,	St. Paul Despatch Co., advertising proposals for printing	12 60
"	14,	Frank A. Day, advertising land sale, Martin County	5 25
"	16,	St. Paul Despatch Co., advertising bids for rebuilding Capitol	20 25
"	16,	R. C. Mitchell, advertising proposals for printing	14 65
"	18,	J. R. Howard, indexing House Journal	100 00
"	18,	S. P. Jennison, indexing Senate Journal	100 00
"	20,	Burt W. Day, advertising land sale, Jackson County	5 25
June	25	Daily Evening Journal, advertising rebuilding of capitol	25 57
"	27	W. R. Dunn, advertising land sale, Polk county	5 25
"	27	J. W. Cunningham, printing	83 00
"	27	Hess & Tuttle, advertising land sale, Big Stone county	7 70
"	29	W. R. Willard, engraving plates for geological report	48 00
"	29	Pioneer Press Company, briefs, &c., for attorney general	7 75
"	29	Pioneer Press Company, advertising proposals for printing, land sales, &c	60 37
July	1	G. Spogren, packing and shipping laws to counties	103 60
"	9	A, J. Underwood, advertising land sale, Otter Tail county	5 25
"	15	J. K. Moore, on account 4th class work	1,000 00
"	15	Gordon E. Cole, ½ cost printing bond act	7 50
"	15	S. A. Clewell, on account 5th class work	98 50
"	25	W. H. H. Taylor, printing for library	18 20
"	30	S. A. Clewell, on account 5th class work	93 75
Aug.	12	S. A. Clewell, on account 5th class work	490 00
Sept.	2	Brown & Herbert, printing briefs in bond case	111 00
"	3	S. A. Clewell, on account 5th class work	75 00
"	3	St. Paul Dispatch Company, advertising proposals for stationery	28 13
"	15	N. H. Winchell, maps, &c., for geological report	183 40
"	19	Evening Journal, advertising proposals for stationery	28 13

Sept.	23	Pioneer Press company, advertising proposals for stationery and stumpage sales	35	62
"	30	J. K. Moore, on account 4th class work	500	00
Oct.	1	Daily Globe, advertising land sale, general	5	62
"	4	F. von Baumbach, maps for geological report	64	00
"	4	W. H. Mitchell, advertising land sale, Sherbune county	5	25
"	5	Pioneer Press company, rebinding supreme court reports...	165	00
"	7	S. A. Clewell, on account 5th class work..............	150	00
"	7	O. G. Miller, printing blanks, &c..................	6	75
"	20	E. H. Folsom, advertising land sale, Chisago county.......	5	50
"	20	Kelly Bros., advertising special election..................	4	40
"	20	A. W. Blakely, advertising special election................	4	40
"	20	Kruger Bros. advertising special election..................	4	40
Oct.	21,	C. F. McDonald, advertising land sale, Stearns Co..........	5	25
"	28,	Geo. D. Hamilton, " " " Becker Co..........	5	25
"	"	R. McNiell, advertising special election, 11th District.......	3	30
"	"	Enterprise Pub. Co., advertising special election, 5th District,	3	37
Nov.	2,	Coffin & Bolton, advertising land sale, Chippewa Co.......	5	25
"	"	Chas. C. Brown, " " " Marshall Co.........	5	25
"	"	H. E. Cooke, " " " Polk Co.............	5	25
"	"	P. P. Hall, " " " Fillmore Co.........	5	25
"	"	Peter Magnus, " " " Isanti Co............	5	25
"	"	Minneapolis Tribune, " " " Hennepin Co........	5	25
"	"	Red Wing Printing Co., " " Goodhue Co.........	5	25
"	"	F. T. Drebert, " " " Steele Co............	5	25
"	"	Farmington Press, " " " Dakota Co...........	5	25
"	"	Enterprise Pub. Co., " " " Freeborn Co...	5	25
"	"	Sauk Rapids Sentinel, " " " Benton Co..........	5	25
"	"	E. B. Robie, " " " Pine Co.............	5	25
"	"	H. W. McKinstry, " " " Rice Co......... .. .	5	25
"	"	Mankato Free Press, " " " Blue Earth Co	5	25
"	"	Crookston Chronicle, " " " Polk Co............	5	25
"	"	A. J. Underwood, " " " Otter Tail Co........	5	25
"	"	Douglas Co. News, " " " Douglas Co...........	5	25
"	"	New Ulm Post, " " " Brown Co......... .	5	25
"	"	Anoka City Herald, " " " Anoka Co...	5	25
"	"	Rose & Morse, " " " Waseca Co..........	5	25
"	"	A. W. Scott, " " " Pope Co..	5	25
"	"	W. B. Mitchell, " " " general.............	7	50
"	"	Die Volkszeitung, " " " general............	7	50
"	"	C. F. Hendryx, " " " general............	7	50
"	"	Minneapolis Tribune, advertising stumpage sale.............	7	50
"	"	H. C. Van Lewren, advertising land sale, Fillmore Co.......	5	00
"	"	Hastings New Era, " " " Dakota Co.........	3	92
"	"	W. C. Whiteman, " " " Grant Co..........	3	03
"	"	Alexandria Post, " " " Douglas Co........	2	60
"	"	Glencoe Enterprise, " " " McLeod Co.... ...	4	20
"	"	Northern Pacific Farmer, " " " Wadena Co........	4	30
"	"	Fergus Falls Independent, " " Otter Tail Co.......	4	50

Nov.	"	W. A. Chapman, advertising land sale, Watonwan Co.	3 97
"	2,	Kinney & Gordon, advertising land sale	4 50
"	5,	S. A. Clewell, on account 5th class work	900 00
"	5,	T. W. Woodburn, advertising land sale, Kandiyohi county	3 25
"	5,	F. J. Pearson, advertising land sale, Morrison county	5 25
"	5,	Irving Todd, advertising land sale, general	7 50
"	5,	W. C. Brown, advertising land sale, general	7 50
"	9,	J. K. Moore, advertising land sale, Nicollet county	5 25
"	9,	Williams & Drake, advertising special election, Freeborn county	2 50
"	11,	J. W. Cunningham, on account 1st and 2d class work	1,500 00
"	11,	P. J. Giesen, binding Ms. Laws and Records for Senate	205 25
"	12,	Pioneer Press Co., binding books for Railroad Commissioner	26 00
"	12,	Brainerd Tribune, advertising land sale, Crow Wing and Cass counties	5 25
"	12,	F. E. Du Toit, advertising land sale, Carver county	5 25
"	12,	Daniel Picket, advertising land sale, Sibley county	5 25
"	12,	C. J. Harris, advertising special election, Wabasha county	5 60
"	12,	J. S. Shuck, advertising land sale, Dodge county	5 25
"	17,	Pioneer Press Co., advertising proclamation, special election, land sale	82 51
"	17,	Victor Hjortsberg, packing and shpping laws	6 00
"	19,	Buddstikken, advertising land sale, general	3 38
"	21,	H. Tanner, advertising land sale, general	7 50
"	21,	O. F. Collier, advertising land sale, Wabasha county	5 25
"	21,	Nordvesten, advertising land sale, general	5 62
"	22,	John Schroeder, advertising land sale, general	5 63
"	23,	A. W Sheets, advertising land sale, Todd county	5 25
"	23.	Comstock & Ostrander, advertising land sale, Houston Co.	5 25
"	26,	P. B. Walker, advertising stumpage sale	3 75
"	30,	O. G. Miller, 100 copies of Bond act	6 00
"	30,	Seward & Taylor, advertising land sale, Washington Co.	5 25
"	30,	S. A. Clewell, on account 5th class work	600 00
"	30,	Daily Globe, advertising notice to claimants under Bond act	9 00
"	30,	Minneapolis Tribune Co., advertising notice to claimants under Bond act	9 00
"	30,	Stillwater Lumberman, advertising stumpage sale	7 50
"	30,	C. H. Slocum, advertising land sale, Faribault county	5 25
"	30,	David Ramalay, measuring 3d class work	56 00
"	30,	S. A. Clewell, balance on 5th class contract	1,879 03
			$25,418 13

PRINTING, ADVERTISING AND BINDING DEFICIENCY.

1881.			
Nov.	30,	J. W. Cunningham, on account 1st and 2d class work	$500 00

PRINTING PAPER.

1881.			
Jan.	11,	Averill, Russell & Carpenter, paper	$2,647 50
Mar.	25,	Averill, Russell & Carpenter, paper	341 06
June	29,	Averill, Russell & Carpenter, paper	1,452 10

Aug 11,	Averill, Russell & Carpenter, paper	1,207 60
" 11,	Averill, Russell & Carpenter, paper	27 56
		$5,675 82

PRINTING PAPER DEFICIENCY

1881.		
Nov. 16,	Averill, Russell & Carpenter, paper	$535 00

STATIONERY.

1881.		
March 5,	St. Paul Book and Stationery Company, stationery	$603 45
" 11,	St. Paul Book and Stationery Company, stationery	374 03
" 14,	St. Paul Book and Stationery Company, stationery	889 73
April 20,	St. Paul Book and Stationery Company, stationery	252 56
May 24,	St. Paul Book and Stationery Company, stationery	143 11
June 18,	St. Paul Book and Stationery Company, stationery	203 39
July 25,	W. H. H. Taylor, stationery for Library	15 00
Aug. 12,	St. Paul Book and Stationary Company, stationery	64 88
Nov. 11,	St. Paul Book and Stationery Company, stationery	827 00
" 30,	St. Paul Book and Stationery Company, stationery	34 62
		$3,407 77

STATIONERY DEFICIENCY.

1881.		
Nov. 11,	D. D. Merrill, manager, stationery	$148 42
" 15,	St. Paul Book and Stationery Company, stationery	190 01
		$338 43

PRINTING LAWS IN NEWSPAPERS.

1881.			
March 19,	Daily Globe		$104 00
March 19,	N. W. Newspaper Union—		
	North Western Chronicle, St. Paul	$104 00	
	Evening Despatch	104 00	
March 21,	100 copies supplements	5 00	
			$213 00
March 22,	Lumberman Steam Printing Co.—		
	Stillwater Lumberman		$104 00
March 23,	H. P. Hall and A. E Bunker—		
	Waseca County Herald	$104 00	
	Anoka County Union	104 00	
	Anoka County Herald	104 00	
	Mankato Review	104 00	
	Hastings Gazette	104 00	
	Hastings New Era	104 00	
	St. Cloud Times	104 00	
	St. Cloud Journal-Press	104 00	
	Winona Herald	104 00	
	N. W. Reporter, St. Paul	104 00	
	Minn. Demokrat, St. Paul	104 00	
	Der Wanderer, St. Paul	04 00	
	Daily Hotel Reporter, St. Paul	104 00	
	Western Newspaper Union, St. Paul	104 00	

	rinceton Union	104 00	
	Die Volkszeitung, St. Paul	104 00	
	Le Canadian, St. Paul	104 00	
			$1,768 00
March 23, N. W. Newspaper Union—			
	Shakopee Courier	104 00	
	Detroit Record	104 00	
	Northfield News	104 00	
	St. Peter Tribune	104 00	
	Rush City Post	104 00	
	Western Minn. Press, Willmar	104 00	
	he Messenger, Winnebago Agency	104 00	
	Minn. Besbachter, Mankato	104 00	
	Winona Republican	104 00	
	Faribault Democrat	104 00	
	Minneapolis Evening Journal	104 00	
	Minneapolis Daily Herald	104 00	
			$1,248 00
March 23, Seward & Taylor—			
	Stillwater Messenger		$104 00
March 24, Northwestern Newspaper Union—			
	Hennepin County Mirror	$104 00	
	inneapolis Free Press	104 00	
	Red River Valley News, Glyndon	104 00	
	Fisher's Landing Bulletin	104 00	
	Crookston Chronicle	104 00	
	Janesville Argus	104 00	
	Murdock Herald	104 00	
	Pine County Record	104 00	
	Rice County Journal	104 00	
			$936 00
March 24, H. P. Hall and A. E. Bunker—			
	Temperance Review, Owatonna	104 00	
	Winona Adler	104 00	
	Der Noodstern, St. Cloud	104 00	
	Sauk Rapids Sentinel	104 00	
	Red Wing Advance	104 00	
	Red Wing Republican	104 00	
	Litchfield Independent	104 00	
	Scott County Advocate, Jordan	104 00	
	Melrose Record	104 00	
			$936 00
March 25, Northwestern Newspaper Union—			
	Skaffaren, St. Paul	104 00	
	Dodge County Republican, Kasson	104 00	
	Taylor's Falls Journal	104 00	
	Preston Republican	104 00	
	Sherburne County Star, Elk River	104 00	
	Verndale Journal	104 00	
	Glencoe Enterprise	104 00	
	Budstikken, Minneapolis	104 00	

Albert Lea Enterprise	104 00	
Faribault County Journal, B. E. City	104 00	
Douglas County News	104 00	
		$1,144 00
March 25, H. P. Hall and A. E. Bunker—		
Faribault Republican	$104 00	
Daily Hotal Gazette, Minneapolis	104 00	
Moorhead Argonaut	104 00	
St. Peter Times	104 00	
Elk River News	104 00	
		$520 00
March 30, H. P. Hall and A. E. Bunker—		
Glencoe Register	104 00	
St. Charles Times	104 00	
Blue Earth City Post	104 00	
Fergus Falls Advocate	104 00	
Minnesota Radical, Waseca	104 00	
Duluth Tribune	104 00	
		$624 00
March 26, N. W. Newspaper Union—		
Pioneer Press	$104 00	
Freeborn County Standard	104 00	
Le Sueur County News	104 00	
Mankato Free Press	104 00	
Le Sueur County Sentinel	104 00	
Saturday Evening Spectator, Minneapolis	104 00	
Peoples' Press, Owatonna	104 00	
Owatonna Journal	104 00	
Dodge Center Index	104 00	
Willmar Republican Gazette	104 00	
Wright County Eagle, Delano	104 00	
Hutchinson Leader	104 00	
Wright County Times, Monticello	104 00	
Northern Pacific Farmer, Wadena	104 00	
Mantorville and Kasson Express	104 00	
		$1,560 00
March 26, H. P. Hall and A. E. Bunker—		
Pine Island News	$104 00	
Wabasha County Herald, Wabasha	104 00	
Austin Register	104 00	
Lake City Sentinel	104 00	
Mazeppa Tribune	104 00	
Winona Democrat	104 00	
Sibley County Independent, Henderson	104 00	
Le Roy Independent	104 00	
Red Wing Argus	104 00	
		$936 00
March 26, Northwestern Newspaper Union—		
St. James Journal	$104 00	
New Ulm Post	104 00	
National Republican, Minneapolis	104 00	
Rushford Star	104 00	

March 26,	Mower County Transcript, Austin	104 00	
March 28,	Litchfield News Ledger	$104 0	
	Morris Tribune	104 00	
	Isanti County Press, Cambridge	104 00	
	Polk County Journal, Crookston	104 00	
	Minnesota Stats Tidning, Minneapolis	104 00	
	Zumbrota Independent	104 00	
	New Ulm Review	104 00	
	Houston County Argus	104 00	
			$1,352 00
March 28,	H. P. Hall & A. E. Bunker—		
	Benson Times	$104 00	
	Lake Superior News, Duluth	104 00	
	Brainerd Tribune	104 00	
	Ada Alert	104 00	
	Fillmore County Radical Fountain	104 00	
	Minneapolis Tribune	104 00	
			$624 00
March 29th,	W. G. Mitchell Co,—		
	St. Vincent Herald		$104 00
March 29th,	H. P. Hall and A. E. Bunker—		
	Chaska Valley Herald	$104 00	
	Hastings Union	104 00	
	Shakopee Argus	104 00	
	Little Falls Transcript	104 00	
	Alexander Post	104 00	
	Red River Free Press, Breckenridge	104	
	Record and Union, Rochester	104 00	
			$724 00
March 29th,	Northwestern Newspaper Union—		
	Madelia Times	$104 00	
	Wells Advocate	104 00	
	St. Charles Union	104 00	
	Riverside Press	104 00	
	Herman Herald	104 00	
	Jackson Republic	104 00	
	Montgomery Standard	104 00	
			$728 00
March 30th,	H. P. Hall and A. E. Bunker—		
	Lanesboro Journal	104 00	
	Sauk Center Herald and Melrose Record	104 00	
	Utica Transcript	104 00	
	Peoples Advocate, Howard Lake	104 00	
	Upplysmingens Tidehoorf, Grove City	104 00	
			$520 0
March 30,	Northwestern Newspaper Union—		
	Fairmont Sentinel	$104 00	
	Prior Lake Times	104 00	
	Sring Valley Vidette	104 00	
	Wykoff Record	104 00	
	Carver Free Press	104 00	
			$520 00

March 31,	Northwestern Newspaper Union—		
	Albert Lea Skandinar	$104 00	
	Ortonville North Star	104 00	
	Oronoco Journal	104 00	
			$312 00
	H. P. Hall and A. E. Bunker—		
	Farmers' Union, Minneapolis	$104 00	
	Chatfield Democrat	104 00	
	Todd County Argus, Long Prairie	104 00	
	Marshall Messenger	104 00	
	Sleepy Eye Herald	104 00	
	Lac qui Parle Independent	104 00	
	Meeker County Tribune, Grove City	104 00	
	Wabasha Bulletin	104 00	
	Winnebago City Press and Times	104 00	
			$936 00
April 1,	Duel & Scheomuly—		
	St. Croix Post		$104 00
	Northwestern Newspaper Union—		
	Chippewa County Leader, Montevideo	$104 00	
	Fergus Falls Journal	104 00	
	Bird Island Post	104 00	
	Plainview News	104 00	
			$416 00
April 2,	H. P. Hall and A. E. Bunker—		
	Minnesota Farmer, Minneapolis	$104 00	
	Farmington Press	104 00	
			$208 00
April 2,	Northwestern Newspaper Union—		
	Houston County Journal	$104 00	
April 6,	Renville Times, Beacon Falls	104 00	
	Renville News, Renville Station	104 00	
	Granite Falls Journal	104 00	
April 7,	Steele County Herald	104 00	
			$520 00
April 8,	H. P. Hall and A. E. Bunker—		
	Redwood Gazette	$104 00	
April 9,	Murray County Pioneer Courier	104 00	
			$208
April 9,	N. W. Newspaper Union—		
	Stillwater Gazette	$104 00	
	Mower Co. Mercury, Austin	104 00	
	South West Minnesotian, Currie	104 00	
	Bigstone Co. Herald, Ortonville	104 00	
	Windom Reporter	104 00	
	Worthington Journal	104 00	
	Worthington Advance	104 00	
			$728 00
April 11,	Andrew J. Lee—		
	Pope Co. Press, Glenwood		$104 00

April 13, H. P. Hall and A. E. Bunker—		
Miss. Valley Lumb. & Mfr.	$104 00	
April 14, Public Spirit, Mankato	104 00	
		$208 00
April 15, N. W. Newspaper Union—		
Appleton Recorder		$104 00
April 15, Carr Huntington—		
The Bee, Blue Earth City		104 00
April 15, H. P. Hall and A. E. Bunker—		
Rochester Post		104 00
April 19, N. W. Newspaper Union—		
Lamberton Commercial		104 00
April 20, H. P. Hall and H. E. Bunker—		
Rock County Herald, Luverne		104 00
April 21, N. W. Newspaper Union—		
Tracy Gazette	$104 00	
April 23, Lake City Leader	104 00	
		$208 00
April 23, H. P. Hall and A. E. Bunker—		
Canby News	$104 00	
April 26, Brown's Valley Reporter	104 00	
		$208 00
May 2, N. W. Newspaper Union—		
Pipe Stone County Star	$104 00	
May 4, Lincoln County Tribune, Tyler	104 00	
		$208 00
May 5. H. P. Hall and A. E. Bunker—		
Lyon County News		$104
May 5, N. W. Newspaper Union—		
Huron Lake Guardian		104 00
		$19,973 00

PRINTING LAWS—NEWSPAPER DEFICIENCY.

1881.		
Nov. 11th, H. P. Hall—		
Daily Globe	$24 40	
Marshall Messenger	24	
Minnesota Farmer	24 40	
Madelia Times	24 40	
Garden City Messenger	24 40	
Wabasha Herald	24 40	
Blue Earth City Bee	24 40	
Alexandria Post	24 40	
		$195 20
Nov. 11th, A. W. M. Kinstry—		
Faribault Republican		24 40
Nov. 12th, G. S. Pease—		
Anoka County Union		24 40
Nov. 12th, H. P. Hall—		
St. Charles Times	$24 40	
Elk River News	24 40	
		48 80

Nov. 12th, A. L. Stoughton—		
Rock County Herald....		24 40
Nov. 14th, E. B. Robin--		
Rush City Post...........................	$24 40	
Pine County Record.....................	24 40	
		48 0
Nov. 14th, Geo. A. Ogle—		
Worthington Journal..		24 40
Nov. 15th, C. S. Powers—		
Fillmore County Radical.................		24 40
Nov. 16th, W. C. Whiteman—		
Herman Herald.................... ...		24 40
Nov. 16th, Hastings Union—		
Hastings Union...		24 40
Nov. 16th, Northwestern Newspaper Union—		
Stillwater Gazette...	$24 40	
National Republican	24 40	
Wabasha Bulletin.........................	24 40	
Fisher's Landing...	24 40	
Pioneer Press............	24 40	
		$122 00
Nov. 16th, C. F. McDonald—		
St. Cloud Times..........................		24 40
1881.		
November 17, H. P. Hall—		
Stillwater Lumberman..................		$ 24 40
November 17, Northwestern Newspaper Union—		
Jackson Republic.................. ..	$24 40	
Murdock Herald..........................	24 40	
Riverside Press, Appleton..............	24 40	
Appleton Recorder.......................	24 40	
Spring Valley Vidette...................	24 40	
St. Peter Times................	24 40	
		$146 40
November 18, C. H. Davidson—		
Mower County Transcript		$ 24 40
November 18, Northwestern Newspaper Union—		
Oronoco Journal.........................	$24 40	
Hutchinson Leader..................	24 40	
Granite Falls Journal..................	24 40	
Renville News...........................	24 40	
Murray County Pioneer..................	24 40	
Prior Lake Times.......................	24 40	
		$146 40
November 19, St. Croix Post—		
St. Croix Post................... ...		24 40
November 19, J. W. Emery—		
Farmington Press.......................		24 40
November 19, Frank Matchett—		
Scott County Advocate..................		24 40

November 19, L. Naegele—		
Minneapolis Free Press		24 40
November 19, Chas. A. Stevens—		
Shakopee Courier		24 40
November 19, Farmers' Union—		
Farmers' Union		24 40
November 19, Minneapolis Tribune Company—		
Minneapolis Tribune		24 40
November 19, Platt B. Walker—		
Mississippi Valley Lumberman		24 40
November 19, J. R. Ellerston—		
Albert Lea Skandinar		24 40
November 10, S. S. Lewis—		
Cannon Falls Beacon		24 40
Nov. 21, L. O. Benjamin—		
Rochester Post		24 40
Nov. 21, St. Paul Dispatch Co.—		
Evening Dispatch		24 40
Nov. 21, H. P. Hall—		
Sauk Center Herald and Record		24 40
Nov. 21, N. W. Newspaper Union—		
Utica Transcript	$24 40	
Detroit Record	24 40	
Le Sueur News	24 40	
Ada Alert	24 40	
Isanti Co. Press	24 40	
		$146 40
Nov. 21, Seward and Taylor—		
Stillwater Messenger		24 40
Nov. 22, L. Bixby—		
Temperance Review		24 40
Nov. 22, N. W. Newspaper Union—		
Hennepin Co. Mirror		24 40
Nov. 23, H. P. Hall—		
Waseca Co. Herald		24 40
Nov. 23, A. W. Sheets—		
Todd Co. Argus		24 40
Nov. 25, C. R. McKenney—		
Chatfield Democrat		24 40
Nov. 25, N. W. Newspaper Union—		
Taylors Falls Journal	$24 40	
N. W. Union	24 40	
		48 80
Nov. 25, N. W. Newspaper Union.		
Mower Co. Mercury	$24 40	
Chaska Herald	24 40	
		48 80
Nov. 26, W. Publishing Co.—		
Northwestern Reporter		24 40
Nov. 26, H. P. Hall—		
Minn. Democrat		24 40

Nov. 26, N. W. Newspaper Union—		
Anoka City Herald	$24 40	
Windom Reporter	24 40	
Wells Advocate	24 40	
Tyler Tribune	24 40	
		$97 60
Nov. 26, A. M, Morrison—		
Canby News		24 40
Nov. 28, W. M. Tileson—		
Hotel Reporter, St. Paul		24 40
Nov. 28, H. Gillett—		
Hastings New Era		24 40
Nov. 28, H. E. Lawrence—		
Northfield News		24 40
Nov. 28, A. W. Blakely & Co.—		
Rochester Record and Union		24 40
Nov. 29, A. L. Tule—		
Moorhead Argonaut		24 40
Nov. 29, E. Gerstenhaner—		
Winona Adler		24 40
Nov. 29, Buel & Osborne—		
Hotel Gazette, Minneapolis		24 40
Nov. 30, Red Wing Printing Company		
Red Wing Republican		24 40
Red Wing Advance		24 40
Nov. 30, H. O. Basford—		
Austin Register		24 40
Nov. 30, Joseph Chadderdon—		
Montgomery Standard		24 40
Dec. 1, H. D. Brown—		
Lake City Sentinel		24 40
Dec. 2, A. N. Dare—		
Sherburne County Star		24 40
Dec. 3, W. G. Mitchell—		
St. Vincent Herald		24 40
Dec. 3, Die Volksieztung—		
Die Volkszietung, St. Paul		24 40
Dec. 23, N. W. Newspaper Union—		
Wright County Eagle		24 40
Dec. 3, Northwestern Newspaper Union—		
Lake City Leader		24 40
Dec. 5, C. J. Erickson—		
Grove City, Meeker county		24 40
Dec. 5, Democrat Printing Company—		
Winona Democrat		24 40
Dec. 1, Enterprise Printing Company—		
Glencoe Enterprise		40
Dec 1, Lac qui Parle Independent—		
Lac qui Parle Independent		24 40

Dec. 5, T. E. Bowen—		
Sleepy Eye Herald		24 40
Dec. 6, T. W. Woodburn—		
Western Minnesota Press		24 40
Dec. 6, C. L. Davis—		
Red Wing Argus		24 40
Dec. 6, J. C. Wise—		
Mankato Review		24 40
Dec. 6, Northwestern Newspaper Union—		
Freeborn County Standard	$24 40	
Douglass County News	24 40	
		48 80
Dec. 6, W. B. Mitchell—		
Journal-Press, St. Cloud		24 40
Dec. 7, Northwestern Newspaper Union—		
Meeker County Tribune	$24 40	
Benson Times	24 40	
Peoples Press	24 40	
		73 20
Dec. 8, J. D.Quane—		
Public Spirit, Mankato		24 40
Dec. 8, R. McNiell—		
Dodge Center Index		24 40
Dec. 8, C. H. DuBois—		
Saturday Evening Spectator		24 40
Dec. 8, Northwestern Newspaper Union—		
Houston County Journal	$24 40	
Budstikken, Minneapolis	24 40	
Carver Free Press	24 40	
Faribault Democrat	24 40	
Wykoff Record	24 40	
Polk County Journal	24 40	
Janesville Argus	24 40	
Peoples Advocate, Howard Lake	24 40	
Brainerd Tribune	24 40	
		219 60
Dec. 8, D. Michand—		
Le Canadian		24 40
Dec. 8, Jos. Bobleter—		
New Ulm Review		24 40
Dec. 9, Bird Island Post—		
Bird Island Post		24 40
Dec. 9, St. James Journal—		
St. James Journal		24 40
Dec. 9, Worthington Advance—		
Worthington Advance		24 40
Dec. 10, St. Paul Book and Stationery Co.—		
Pipestone Co. Star		24 40
Dec. 10, Sundry Newspapers—		
Plainview News	$24 40	

Mazeppa Union	24 40	
Renville Times	24 40	
Morris Tribune	24 40	
Princeton Union	24 40	
Verndale Journal	24 40	
Mantorville Express	24 40	
Polk Co. Journal	24 40	
Dodge Co. Republican	24 40	
Winnebago City Press and Times	24 40	
		244 00
Dec. 12, A. L. Bolton—		
Montevideo Leader		24 40
Dec. 12, N. W. Newspaper Union—		
Tracy Gazette		24 40
Dec. 12, N. W. Newspaper Union—		
Houston Co. Argus	$24 40	
Ortonville North Star	24 40	
		48 80
Dec. 12, Ira J. Covey—		
Minneapolis Evening Journal	$24 40	
Minneapolis Daily Herald	24 40	
		48 80
Dec. 14, Sundry Newspapers—		
Minnesota Radical	$24 40	
Big Stone Co. Herald	24 40	
Free Press, Mankato	24 40	
Litchfield Independent	24 40	
Hastings Gazette	24 40	
Pine Island News	24 40	
North Pacific Farmer, Wadena	24 40	
Glyndon News	24 40	
Faribault County Journal	24 40	
Dec. 14, Sunday newspapers—		
Zumbrota Independent	24 40	
Redwood Gazette	24 40	
		268 40
Dec. 14, W S. Tunberlake—		
St. Charles Union		24 40
Dec. 23, S. S. Haislet—		
Heron Lake Guardian		24 40
Dec. 24, Northwestern Newspaper Union—		
LeRoy Independent		24 40
		$3,782 00

SUPREME COURT REPORTS.

1881.	
Feb. 26, George B. Young, 200 copies Minnesota reports volume 26.	$1,200 00
Nov. 25, West Publishing Company, 200 copies, vol. 26, no. 2	1,000 00
	2,200 00

LAW LIBRARY.

1881.			
Jan.	7,	W. H. H. Taylor, books	$ 5 82
Mar.	16,	West Publishing Company, books	232 00
	23,	G. Sidney Smith, books	11 00
	25,	West Publishing Company, books	652 50
	29,	W. H. H. Taylor, books	8 00
April	9,	West Publishing Company, books	63 50
	12,	West Publishing Company, books	185 35
	18,	West Publishing Company, books	290 00
	26,	W. H. H. Taylor, books	66 00
May	9,	West Publishing Company, books	243 17
	10,	W. H. H. Taylor. books	11 00
	13,	West Publishing Company, books	68 91
	23,	W. H. H. Taylor, special laws of 1867	5 00
	23,	W. H. H. Taylor, books	26 00
June	4,	West Publishing Company, books	63 25
	15,	W. H. H. Taylor, books	22 55
	22,	West Publishing Company, books	101 60
	28.	W. H. H. Taylor, books	7,650 00
July	16,	West Publishing Company, books	136 04
Aug.	26,	Park Davis, books	50 00
Sept.	8,	W. H. H. Taylor, books	5,000 00
	30,	W. H. H. Taylor, books	7 70
	28,	West Publishing Company, books	28 30
Oct.	18,	W. H. H. Taylor, books	27 00
Nov.	2,	W. H. H. Taylor, books	26 95
	14,	W. H. H. Taylor, books	26 00
	30,	W. H. H. Taylor, books	24 00
			$15,031 14

BINDING LAW BOOKS.

1881.			
Mar.	1,	West Publishing Company, binding books	$43 25
July	16,	West Publishing Company, binding books	10 55
	19,	W. H. H. Taylor, freight	43 30
			$97 10

READING PROOF.

1881.			
March	5,	C. F. Solberg, reading proof on State reports	$250 00
"	9,	W. P. Jewett, expenses and services reading proof State Auditor's report	41 00
March	9,	C. F. Solberg, reading proof at St. Peter	91 50
"	9,	M. D. Kenyon, expenses of two trips to St Peter	17 50
			$400 00

INSANE SUPPORT, FIRST HOSPITAL.

1881.			
Jan.	8,	Wm. Schimmel. Treasurer, expenses, December, 1880	$ 8,515 49
March	4,	Wm. Schimmel, Treasurer, expenses, Jan. and bal. of Dec.	8,125 79
"	10,	Wm. Schimmel, Treasurer, expenses, February, &c.	15,264 38

April 7,	Wm Schimmel, Treasurer, expenses, March, &c	8,177	79
May 9,	Wm. Schimmel, Treasurer, expenses, April	5,395	29
June 9,	Wm. Schimmel, Treasurer, expenses, May	8,841	06
July 8,	Wm. Schimmel, Treasurer, expenses, June	5,678	08
Aug. 9,	Wm. Schimmel, Treasurer, expenses, July	6,728	23
Sept. 7,	Wm. Schimmel, Treasurer, expenses, August	9,732	06
Oct. 24,	Wm. Schimmel, Treasurer, expenses, September	8,379	38
Nov. 18,	Wm. Schimmel, Treasurer, expenses, October	7,445	96
" 30,	Wm. Schimmel, Treasurer, expenses, November	7,203	19
		$99,486	70

EMPLOYES, FIRST HOSPITAL FOR INSANE.

1881.			
Mar. 16,	Wm. Schimmel, Treasurer, losses by fire at Hospital	$1,306	17

INSANE SUPPORT, SECOND HOSPITAL.

1881.			
Jan. 8,	Wm. Schimmel, Treasurer, expenses, December, 1880	$2,541	47
Mch. 14,	Wm. Schimmel, Treasurer, expenses, Dec.,Jan.and Feb.1881	4,958	84
April 12,	Wm. Schimmel, Treasurer, expenses, March	3,478	80
May 6,	Wm. Schimmel, Treasurer, expenses, April	3,020	48
June 9,	Wm. Schimmel, Treasurer, expenses, May	2,585	15
July 8,	Wm. Schimmel, Treasurer, expenses, June	2,382	61
Aug. 9,	Wm. Schimmel, Treasurer, expenses, July	2,370	93
Sept. 7,	Wm. Schimmel, Treasurer, expenses, August	3,415	17
Oct. 5,	Wm. Schimmel, Treasurer, expenses, September	3,181	99
Nov. 14,	Wm. Schimmel, Treasurer, expenses, October, as allowed	3,624	90
" 18,	Wm. Schimmel, Treasurer, expenses, September	827	17
" 30,	Wm. Schimmel, Treasurer, expenses, November	3,296	78
		$35,684	29

PRISON CURRENT EXPENSES.

1881.			
Jan. 4,	J. A. Reed, Warden, expenses, December, 1880	$7,282	66
Feb. 2,	" " on account expenses, January, 1881	3,566	43
March 9,	" " expenses, Feb. and balance of Jan.	4,113	73
April 4,	" " expenses, March	3,954	32
May 4,	" " expenses, April	4,623	34
June 10,	" " expenses, May	3,991	03
29,	Stone & Hurlburt, insurance on prison buildings, &c	506	06
July 1,	Frank E. Joy, insurance on prison buildings and machinery	497	62
8,	J. A. Reed, Warden, expenses, June	3,778	14
Aug. 3,	" " expenses, July	3,389	77
Sept. 5,	" " expenses, August	3,678	17
Oct. 7,	" " expenses, September	3,768	03
Nov. 2,	" " expenses, October	4,427	28
30,	" " expenses, November	3,391	66
		$50,968	24

DEAF, DUMB, BLIND AND IMBECILE SUPPORT.

1881.			
Jan. 8,	H. Wilson, Treasurer, expenses, December, 1880	$3,340	35
Mch. 9,	" " " January, 1881	3,115	68

Mch. 9,	H. Wilson, Treasurer, expenses, January	97 41
" 11,	" " " February	5,933 81
April 12,	" " " March	2,483 74
May 9,	" " " April	2,110 01
" 16,	G. W. Wood, expenses vising St. Peter Hospital	14 45
" 16,	W. H. Leonard, expenses visiting St. Peter Hospital	10 75
" 16,	C. H. Boardman, expenses visiting St Peter Hospital	13 25
" 27,	W. H. Leonard, expenses visiting Rochester Hospital	13 70
" 27,	C. H. Boardman, expenses visiting Rochester Hospital	16 70
June 13,	H. Wilson, Treasurer, expenses, May	7,171 92
" 13,	G. W. Wood, expenses vistiing Rochester Hospital	6 40
Aug. 9,	H. Wilson, Treasurer, expenses, July	1,526 83
Sep. 9,	H. Wilson, Treasurer, expenses, August	3,080 77
" 27,	C. H. Boardman, expenses visiting St. Peter Hospital	8 95
" 27,	W. H. Leonard, expenses visiting St. Peter Hospital	7 75
Oct. 7,	H. Wilson, Treasurer, expenses, September	3,156 77
Nov. 30,	H. Wilson, Treasurer, expenses, November	6,403 98
		$38,513 22

CARE OF IDIOTS AND IMBECILES.

1881		
Jan. 8,	H. Wilson, Treasurer, expenses Dec. 1880	$ 808 83
Mar. 9,	" " " Jan.	341 25
		$1,150 08

REFORM SCHOOL SUPPORT.

1881		
Mar. 7,	Second National Bank, St. Paul, expenses Dec. 1882, and Jan. and Feb., 1881	$10,871 23
Apr. 6,	Second National Bank, St. Paul, expenses March	2,926 22
May 5,	" " " " " April	3,159 62
June 7,	" " " " " May	2,411 87
July 8,	" " " " " June	4,464 57
Aug. 5,	" " " " " July	3,078 77
Sep. 13,	" " " " " August	2,902 49
Oct. 7,	" " " " on account expenses September	185 23
		$30,000 00

WINONA NORMAL SCHOOL.

1881.		
Jan. 4,	Thos. Simpson, Treasurer, expenses, December, 1880	$1,144 66
Feb. 1,	Thos. Simpson, Treasurer, expenses, January, 1881	2,215 68
March 9,	Thos. Simpson, Treasurer, expenses, February	3,077 09
April 4,	Thos. Simpson, Treasurer, expenses, March	1,657 71
May 2,	Thos. Simpson, Treasurer, expenses, April	1,325 17
June 2,	Thos. Simpson, Treasurer, expenses, May	1,231 45
July 1,	Thos. Simpson, Treasurer, expenses, June	1,066 01
Aug. 1,	Thos. Simpson, Treasurer, expenses, July	117 85
Oct. 13,	Thos. Simpson, Treasurer, expenses, August	180 03
" 17,	Thos. Simpson, Treasurer, expenses, September	1,303 17
Nov. 3,	Thos. Simpson, Treasurer, expenses, October	681 18
		$14,000 00

MANKATO NORMAL SCHOOL.

1881.		
Jan. 5,	O. O. Pitcher, Treasurer, expenses, December, 1880	$2,500 85
April 12,	O. O. Pitcher, Treasurer, expenses, to April 14, 1881	3,576 70
Aug. 27,	J. H. Ray, Treasurer, expenses, August	1,392 48
Sept. 29,	J. H. Ray, Treasurer, expenses to September 20	1,204 16
Oct. 4,	J. H. Ray, Treasurer, expenses, September	245 78
Oct. 24,	J. H. Ray, Treasurer, expenses, to October 14	1,404 66
Oct. 25,	J. H. Ray, Treasurer, expenses, books, etc	403 00
Nov. 14,	J. H. Ray, Treasurer, expenses, furniture, etc	100 60
" 30,	J. H. Ray, Treasurer, expenses, November	1,171 77
		$12,000 00

ST. CLOUD NORMAL SCHOOL.

1881.		
June 4,	W. B. Mitchell, Treasurer, expenses, December, 1880	$1,400 86
Feb. 1,	" " " January, 1881	1,121 07
Mar. 10,	" " " February	1,022 57
April 5,	" " " March	1,484 40
May 4,	" " " April	1,130 20
July 8,	" " " June	911 63
Sept. 5,	" " " August	3,270 12
Oct. 12,	" " " September	1,352 84
Nov. 2,	" " on account, expenses, October	564 78
		$12,258 47

INTEREST ON TEMPORARY LOANS.

1881.		
Mar. 28,	First National Bank, St. Paul, interest on school text book warrants	$499 29
Sept. 7,	German American Bank, interest on school text book warrants	426 30
		$925 59

SOLDIERS' ORPHANS.

1881.		
Jan 27,	Fredrica Lang, order of Board	$39 45
May 25,	Fredrica Lang, order of Board	32 90
		$72 35

FIRST HOSPITAL FOR INSANE.—REBUILDING.

1881.		
April 15,	Wm. Schimmel, Treasurer, order of Board	$ 2,000 00
July 23,	Wm. Schimmel, Treasurer, order of Board	5,000 00
Sept. 17,	Wm. Schimmel, Treasurer, order of Board	20,000 00
Nov. 18,	Wm. Schimmel, Treasurer, order of Board	10,000 00
		$37,000 00

FIRST HOSPITAL FOR INSANE.—HEATING, &C.

1881.		
July 23,	Wm. Schimmel, Treasurer, order of Board	$2,000 00
April 22,	Wm. Schimmel, Treasurer, order of Board	7,000 00
		$9,000 00

FIRST HOSPITAL FOR INSANE.—FURNISHING.

1881.		
July 23,	Wm. Schimmel, Treasurer, order of Board	$2,000 00

FIRST HOSPITAL FOR INSANE.—REPAIRS.

1881.		
April 15,	Wm. Schimmel, Treasurer, order of Board	$3,000 00

FIRST HOSPITAL FOR INSANE.—WATER SUPPLY.

1881.		
Oct. 31,	Wm. Schimmel, Treasurer, order of Board	$10,000 00
Nov. 18,	Wm. Schimmel, Treasurer, order of Board	5,000 00
		$15,000 00

SECOND HOSPITAL FOR INSANE BUILDING.

1880.		
Dec. 23,	Bohn & Welce, balance on contract.	$5,119 27
1881.		
Jan. 4,	Wm. Schimmel, treasurer, order of Board, balance on building	476 24
		$5,595 51

SECOND HOSPITAL FOR INSANE.—BUILDING DEFICIENCY OF 1878.

1881.		
Mar. 30,	Wm. Schimmel, treasurer, bills paid sundry parties	2,000 00

SECOND HOSPITAL FOR INSANE.—FURNISHING.

1881.		
Mar. 14,	Wm. Schimmel, treasurer, furniture for west wing	4,478 00
May 6,	Wm. Schimmel, treasurer, furniture	522 00
		$5,000 00

SECOND HOSPITAL FOR INSANE.—HEATING.

1881.		
Mar. 14,	J. S. Pillsbury and Wm. Schimmel, treasurer, labor and material	$ 5,397 75
" 31,	Wm. Schimmel, treasurer, on account boilers	2,800 00
April 18,	Wm. Schimmel, treasurer, on account boilers	1,400 00
June 22,	Wm. Schimmel, treasurer, order of board	2,100 00
Aug. 22,	Wm. Schimmel, treasurer, order of board	2,100 00
Oct. 7,	Wm. Schimmel, treasurer, heating	202 25
		$14,000 00

SECOND HOSPITAL FOR INSANE.—ENGINE HOUSE.

1881.		
Aug. 15,	Wm. Schimmel, Treasurer, on acct. contract	$1,478 75
Sep. 22,	Wm. Schimmel, Treasurer, order of Board	821 70
Oct. 7,	Wm. Schimmel, Treasurer, order of Board	1,000 00
Nov. 26,	Wm. Schimmel, Treasurer, order of Board	1.699 55
		$5,000 00

SECOND HOSPITAL FOR INSANE.—WATER SUPPLY.

1881.		
Oct. 7,	Wm. Schimmel, Treasurer, order of Board	$2,000 00
Nov. 26,	Wm. Schimmel, Treasurer, order of Board	3,000 00
		$5,000 00

ENLARGING UNIVERSITY GROUNDS.

1881.		
April 18,	Richard Chute, Treasurer, order of Board	$10,000 00
July 11,	Richard Chute, Treasurer, order of Board	5,000 00
Aug. 10,	First National Bank, St. Paul, order of Board	5,000 00
		$20,000 00

IDIOTS AND IMBECILE BUILDING.

1881.		
May 9,	H. Wilson, Treasurer, order of Board	$ 150 00
July 7,	H. Wilson, Treasurer, order of Board	2,249 31
" 20,	H. Wilson, Treasurer, order of Board	2,279 70
Aug. 12,	H. Wilson, Treasurer, order of Board	2,803 50
Sept. 21,	H. Wilson, Treasurer, order of Board	2,322 00
		$9,804 51

DEAF, DUMB AND BLIND BUILDNG, HEATNG, ETC.

1881.		
Jan. 6,	H. Wilson, Treasurer, order of Board, for balance due S. I. Pope & Co	$795 00

UNIVERSITY WATER SUPPLY.

1881.		
Nov. 30,	Richard Chute, Treasurer, order of board	$500 00

REBUILDING CAPITOL.

1881.			
April	2,	Geo. R. Morton, labor removing debris from ruins of capitol	$ 353 12
	4,	Geo. R. Morton, labor removing debris from ruins of capitol	24 78
	20,	Martin Nelson, cleaning capitol grounds	31 23
	23,	Martin Nelson, tools for cleaning basement	42 25
	29,	St. Paul Dispatch Co., advertisemet for cleaning basement.	3 50
May	9,	Joseph Gotfried, labor on excavation of basement	4 50
	21,	Breuer & Rhodes, tools for excavating basement	16 28
	28,	Daily Globe, advertising for new building	17 75
June	1,	Martin Nelson, labor and tools excavating basement, &c	1,468 83
	2,	Isaac W. Milner, labor on foundation in May	103 36
	16,	Martin Nelson, labor removing walls, &c	118 50
	16,	saac W. Milner, labor on basement	734 74
	28,	Martin Nelson, labor excavating basement	722 39
	29,	L. S. Buffington, services as architect	500 00
July	1,	Martin Nelson, labor excavating basement	644 23
	1,	Isaac W. Milner, labor and material on basement wall	1,075 21
	1,	John Bell, cement and lime	219 55
	16,	Isaac W. Milner, labor on basement	1,450 77
	26,	Martin Nelson, labor excavating basement	368 35
Aug.	1,	Isaac W. Milner, labor and material for basement	2,457 83
	2,	John Bell, lime and cement	412 20
	6,	Frontenac Stone Co., stone for basement	200 00
	10,	Janney, Brooks & Eastman, wheelbarrows	7 50
	10,	Robinson & Cary, wheelbarrows	20 00
	11,	Wiley & Carson, labor and material on basement	551 95

Aug	11,	Wiley & Carson, labor and material on old vaults	60 76
	16,	Isaac W. Milner, labor on basement	2,153 93
	22,	Depew & Co., labor on basement	53 70
	26,	L. S. Buffington, services as architect	500 00
	29,	Frontenac Stone Co., on account of stone	4,000 00
Sept.	1,	I. W. Milner, labor and material for basement	2,772 45
"	1,	John Bell, lime	258 30
"	13,	John Martin & Co., lumber for basement, &c	704 26
"	13,	Wiley & Carlson, labor and material for basement	321 00
"	16,	I. W. Milner, labor and material for basement	1,689 73
"	19,	Saml. G. Kent, plans &c. for sewer	25 00
"	21,	J. Sabody, labor on basement	12 25
"	22,	John Dennison, labor on basement	13 12
"	29,	Robert O'Brien, labor on basement	28 00
"	30,	J. S. Blood, labor on basement	26 00
Oct.	1,	I. W. Milner, labor and material on basement	1,701 67
"	1,	M. Nelson, labor and tools for excavating basement	169 34
"	3,	DePew & Co., repairing tools	2 40
"	5,	Geo. Fierstein, labor on basement	15 50
"	6,	Frontenac Stone Co., on acct., contract for stone	4,000 00
"	6,	Wiley & Carlson, labor and material for first floor, &c	435 79
"	8,	John Bell, lime for basement	244 40
"	10,	S. C. Murdock, labor on basement	21 00
"	10,	G. R. Morton, paid laborers on basement	11 00
"	13,	P. Cooney, labor on basement	18 00
"	17,	I. W. Milner, labor on basement	1,257 66
"	19,	Frontenac Stone Co., water table	336 40
"	19,	John Martin & Co., lumber for basement	150 68
"	21,	G. R. Morton, paid laborers on basement	24 50
"	29,	M. Nelson, cement	17 50
Nov.	1,	M. Nelson, quarrying &c. for engine house rock	297 00
"	1,	I. W. Milner, labor and material on basement	1,093 42
"	5,	Wiley & Carlson, labor and material	159 28
"	5,	Daily Globe, advertising for stone masons	30 75
"	5,	Rosnear & Co., drilling for sewers	100 00
"	11,	John Bell, lime	226 05
"	11,	Mullally & Hanley, iron work	8 16
"	14,	David O'Brien, labor on basement	25 37
"	14,	Daily Evening Journal, advertising for laborers	100 00
"	16,	I. W. Milner, labor on basement	757 76
"	16,	St. Paul Dispatch Co., advertising for masons	67 50
"	16,	M. Nelson, labor on engine house, &c	302 50
Nov.	17,	Pioneer Press Company, advertising for stone masons	86 33
"	18,	S. F. Henderson, labor on basement	5 25
"	22,	I. W. Milner, labor, etc., on basement	245 82
"	25,	Rosenear & Co., on account contract for drilling	100 00
"	26,	Edward E. Scribner, on account roofing slate	1,500 00
"	30,	Minneapolis Tribune Company, advertising for proposals for rebuilding capitol	17 00

Nov.	30.	St. Paul Water Company, for water rebuilding basement of capitol	97 45
"	"	Wiley & Carlson, on account material	1,768 85
"	"	John Bell, cement for basement	21 00
"	"	J. S. Burris, brick, etc	2,070 82
"	"	Rosenear & Co., drilling for sewers	304 00
"	"	Frontenac Stone Company, on account contract	2,200 00
"	"	A. R. Starkey, services as engineer	144 00
			$44,302 01

BOILER ROOM, &C., CAPITOL.

1881.

Sept.	10,	Frank Kernan, excavating for engine house	$235 00
	24,	" " tunnel and foundation	300 00
Oct.	8,	" " labor on tunnel	300 00
	22,	" " excavating tunnel, &c	235 00
	29,	" " on account contract for excavating	35 00
Nov.	5,	" " on account contract for excavating	170 00
	11,	" " excavating tunnel, &c	195 00
			$1,500 00

REPAIRS OF CAPITOL.

1881.

Jan.	8,	R. C. Wiley, sundry repairs	$10 20
"	17,	Chas. E. Chapel, repairs, &c	5 50
Mar.	10,	C. C. Miles, lock for treasurer's vault door	40 00
"	19,	R. C. Wiley, sundry repairs in January	48 11
"	25,	Prendergast Bros., stove and fixtures for insurance commissioner's office	34 62
April	2,	Judson & Brock, kalsoming committee rooms	27 80
"	19,	A. Winter, brooms, &c	8 05
"	23,	Kingsbury & Draper, merchandise for repairs, &c	29 82
"	23,	Corlies & Chapman, blinds, &c., for Governor's rooms	58 07
Aug.	26,	Chas. E. Chapel, dust pans, &c	2 15
			$264 32

REPAIRS OF CAPITOL.—ROOF.

1880.

Dec.	24,	Geo. R. Morton, gas fittings for senate chamber	$61 52
"	24,	Geo. R. Morton, on account frescoing senate chamber	40 00
"	31,	P. Claussen, on account frescoing senate chamber	14 40
			$115 92

FITTING LEGISLATIVE HALLS, MARKET HOUSE.

1881.

Nov.	12.	W. L. Anderson, matting, &c., senate chamber	255 56
"	18,	Wiley & Carson, labor and material	201 00
"	26,	J. Schillo & Co., cuspadors, &c	55 25
"	30,	De Coster & Clark, rent of chairs	9 00
"	30,	Blodgett & Osgood, lumber	81 45
"	30,	De Coster & Clark, use of chairs	50 00

Nov.	30,	Auerbach, Finch & Van Slyck, matting for house of representatives	323	05
"	30,	Geo. R. Morton, sawdust	2	50
			$977	81

FURNISHING OFFICES, MARKET HOUSE.

1881.

Nov.	16,	Kenny & Hudson, gas fixtures	10	00
"	28,	Jno. Matheis, matting for halls	218	43
"	30,	Geo. R. Morton, locks. &c	7	90
"	30,	Beck & Rank, painting safe for clerk of supreme court	18	00
"	30,	Judson & Brock, office signs	19	40
	30,	Prendergast Bros, stoves, &c	110	02
			$383	75

FURNISHING SENATE CHAMBER DEFICIENCY.

1881.

Mch.	4,	John Matheis, carpets, &c	$1,282	99
"	7,	T. S. Mullally, sash weights, &c	9	60
"	14,	E. F. Osborne, balance on heating apparatus	200	00
"	14,	R. C. Wiley, labor and material	257	96
"	14,	Wilson & Rogers, chandeliers, &c	310	20
"	15,	DeCoster & Clark, desks, chairs, &c	206	00
"	15,	J. S. Pillsbury, frescoing	230	60
"	15,	Geo. R. Morton, sundry furnishing bills	148	39
"	28,	John Matheis, carpet, &c	10	83
June	21,	Craig, Larkin & Smith, spittoons	16	59
			$2,673	16

ST. CLOUD NORMAL SCHOOL—ENLARGING GROUNDS.

1881.

April	14,	W. B. Mitchell, Treasurer, order of board	$500	00
	29,	" " " " "	150	00
			$650	00

MANKATO NORMAL SCHOOL—REPAIRS.

1881.

Feb.	5,	O. O. Pitcher, Treasurer, repairs	$8,390	6
March	1,	" " "	1,609	74
			$10,000	00

WINONA NORMAL SCHOOL—IMPROVING GROUNDS.

1881.

Nov.	30,	Thos. Simpson, Treasurer, order of board	$250	00

WINONA NORMAL SCHOOL—GRADING GROUNDS.

1881.

March	3,	Widow of J. H. Jones, and Chas. Butler, appropriation	$950	00

REFORM SCHOOL—DEFICIENCY REPAIRS.

1881.

July	29,	Second National Bank, St. Paul, order of board	$5,370	95

APPRAISING STATE PRISON MACHINERY.

1881.			
Nov.	30,	J. S. Pillsbury, one-half expenses of appraisal	$854 57

RENT OF ARSENAL.

1881.			
Jan.	19,	Max Eibert, on account rent to December 31st, 1880	$23 98
April	18,	“ “ balance rent 1880 and quarter ending Mar. 31	179 52
July	2,	“ “ rent, quarter ending June 30th	111 00
Oct.	3,	“ “ rent, quarter ending September 30th	111 00
			$425 50

HISTORICAL SOCIETY.

1880.			
Dec.	30,	Pioneer Press Co., binding books and pamphlets	$72 00
“	31,	J. F. Williams, salary, &c., December	125 90
“	31,	J. Sabins' Son, books	4 00
1881.			
Jan.	5,	J. F. Williams, books	5 00
“	26,	J. F. Williams, books	5 00
“	26,	Jno. G. Shea, newspapers of Louisiana	4 00
“	26,	J. R. Osgood & Co., subscription to Architect and Building News	6 00
“	31,	J. F. Williams, salary and sundries, January	133 29
Feb.	28,	J. F. Williams, salary, &c	125 35
March	9,	Patrick O'Brien, hauling books, after fire	15 00
“	10,	David Day, P. M., stamps	6 00
“	16,	J. F. Williams, removing books and property of society	39 20
“	25,	Pioneer Press Co., blank book	7 50
“	29,	F. K. Collins, printing collections	172 75
“	31,	J. F. Williams, salary and sundries, March	134 57
April	4,	O. G. Miller, printing circulars and postal cards	6 25
“	8,	Thos. O'Mara, freight and drayage on books	7 85
“	9,	Auerbach, Finch & Van Slyke, curtains	4 00
“	12,	Smith & Lewis, one-half cord wood	3 75
“	28,	R. C, Wiley, on account, book cases	202 59
“	23,	Fletcher Williams Jr., services	20 00
“	23,	Little, Brown & Co., books	7 50
“	30,	F. Williams Jr., services in April	10 50
“	30,	J. F. Williams, salary for April and express charges paid	131 20
May	5,	St. Paul Book & Stationery Co., books	3 50
“	7,	R. C. Wiley, on account of book cases	300 00
“	12,	Pindergast Bros., iron boxes, &c	11 20
“	23,	Hoppin, Palmer & Dimond, binding newspapers	27 20
“	27,	H. H. Schroder, repairing tables	9 00
“	31,	Ira C. Otis, services, May	12 50
“	31,	J. F. Williams, salary and sundries, May	137 25
June	4,	R. C. Wiley, balance on bookcases and furniture	302 41
“	21,	D. Day, P. M., stamps	6 00
“	27,	Chicago Tribune, daily two years	14 00
June	28,	Hoppin, Palmer & Dimond, binding newspapers	23 00

June	30,	J. Sabin's Son, book	4 00
"	30,	St. Paul Gas Light Co., connecting with meter	5 00
"	30,	Ira C. Otis, services as assistant in June	25 00
"	30,	J. F. Williams, salary and sundries, June	131 03
July	12,	Prince & Shandrew, insurance	100 00
"	13,	Geo. A. Hamilton, book	37 80
"	26,	Mitchell & Hughes, book	5 67
"	30,	Ira C. Otis, services, July	25 00
"	30,	J. F. Williams, salary and sundries, July	132 65
Aug.	1,	O. G. Milier, printing cards and labels	5 00
"	2,	J. J. Chapman, books	17 20
"	3,	R. C. Wiley, labor and material for shelving	20 70
"	4,	Homer Bliss, books	12 60
"	5,	St. Paul Fire & Marine Insurance Co., insurance	200 00
"	6,	Jansen, McClurg & Co., books	35 10
"	10,	Wilson & Rogers, gas fixtures	5 00
"	12,	R. H. Collins, books	13 00
"	13,	H. L. Moss, books	100 00
"	17,	Frank Engel, pamphlet cases	15 00
"	17,	Alfred Williams & Co., books	6 50
"	17,	Jansen, McClurg & Co., books	3 70
"	19,	Pioneer Press Co., book	5 00
"	19,	D. G. Francis, books	39 83
"	24,	David Day, P. M., stamps	3 00
"	31,	Ira C. Otis, services, August	25 00
"	31,	J. F. Williams, salary and sundries August	139 65
Sept.	5,	John DeMets, binding books	9 50
"	5,	Estes & Lanrich, books	16 90
"	5,	Leary & Co., books	2 52
"	5,	St. Paul Book and Stationary Co., hektograph	3 50
"	7,	Jonson, McClurg & Co., books	11 52
"	8,	Robert Clarke & Co., books	5 18
"	12,	Geo. E. Littlefield, books	9 00
"	19,	C. L. Woodward, books	151 49
"	19,	James Anglim & Co., books	20 00
"	27,	Pioneer Press Co., books	12 00
"	30,	Ira C. Otis, services, September	25 00
"	30,	J. F. Williams, salary and sundries, September	142 20
Sept.	30,	E. & J. B. Young, books	19 72
Oct.	1,	Henry B. Dawson, books	5 75
"	5,	Bangs Brothers books	5 00
"	31,	J. F. Williams, salary, &c	139 34
"	31,	Ira C. Otis, services, October	25 00
Nov.	30,	J. F. Williams, salary &c., November	132 77
"	30,	Ira C. Otis, services as assistant, November	25 00
			$3,969 08

STATE FORESTRY ASSOCIATION.

1880.		
Dec. 20.	L. B. Hodges, services as secretary 6 months to Dec. 31st, 1880	$150 00
1881.		
Nov. 30,	L. B, Hodges, advertising meeting	14 65
		$164 65

STATE BOARD OF IMMIGRATION.

1880.		
Dec. 21,	John J. Lemon, stereotyping plates, Swedish pamphlet	$12 00
30,	H. H. Young, express charges, postage, &c	75 00
1881.		
Feb. 1,	H. H. Young, services as secretary, January	83 33
1,	H. H. Young. secretary, postage and express charges	50 00
19,	" " " " " "	50 00
March 1,	" " postage, &c	100 00
1,	" " salary, February	83 33
May 4,	" " postage &c	50 00
June 14,	H. H. Young, cuts for pamphlet	30 14
June 14,	" postage	100 00
July 1,	" salary, balance May and June	112 65
1,	" on account printing German pamphlet	500 00
Aug. 1,	Pioneer Press Co., on account printing pamphlet, &c	1,000 00
1,	H. H. Young, salary, July	100 00
23,	H. H. Young, secretary, on account printing German pamphlet	300 00
23,	H. H. Young, secretary, postage and express charges	100 00
Sept. 2,	H. H. Young, salary, August	100 00
27,	H. H. Young, postage and express charges	100 00
27,	H. H. Young, salary, September	100 00
27,	H. H. Young, secretary, printing pamphlet in French	275 00
Oct. 6,	H. H. Young, balance on German pamphlet	415 00
31,	H. H. Young, salary, October	100 00
Nov. 26,	H. H. Young, secretary, postage, &c	150 00
30,	H. H. Young, salary, November	100 00
		$4,086 45

STATE BOARD OF IMMIGRATION—DEFICIENCY.

1881.		
Nov. 26.	Johnson & Gjedde, Norwegian pamphlet	$723 12
" 30,	Skaffaren, printing pamphlet in Swedish	475 00
" 30,	Pioneer Press Co., balance on maps and pamphlets	1,088 45
		$2,286 57

STATE BOARD OF HEALTH.

1881.		
Jan. 7,	Chas. N. Hewitt, salary as secretary. quarter ending Dec. 31st, 1880	$125 00
7,	Chas. N. Hewitt, expenses of board	145 63
Mar. 12,	" " " " "	100 00
31,	" " salary, quarter ending March 31st	125 00

July 2,	Chas. N. Hewett, salary, quarter ending June 30th	125 00
Aug. 1,	" " expenses of board	319 81
Oct. 26,	" " salary, quarter ending September 30th	125 00
Nov. 23,	" " expenses of board	284 51
		$1,349 95

STATE BOARD EQUALIZATION.

1881.		
Sept. 14,	O. P. Whitcomb, per diem	$40 00
" 14,	T. Montgomery, per diem and mileage	62 50
" 14,	Z. B. Page, per diem and mileage	70 00
" 14,	G. C. Chamberlin, per diem and mileage	64 00
" 14,	E. H. Trask, per diem and mileage	88 90
" 14,	J. G. Lawrence, per diem and mileage	61 60
" 14,	A. N. Seip, per diem and mileage	86 50
" 14,	H. S. Sjoberg, per diem and mileage	75 40
" 14,	D. Bassett, per diem and mileage	43 00
" 14,	R. Lehmicke, per diem and mileage	46 00
" 14,	Wm. Dawson, per diem	40 00
" 14,	J. Compton, per diem and mileage	96 10
" 6,	W. J. Hahn, per diem	35 00
Nov. 30,	Thomas Cahill, services tabulating returns	15 00
" 30,	M. D. Kenyon, services to Board, session 1881	150 00
		$974 00

TRAINING SCHOOLS AND INSTITUTES.

1881.		
Feb. 24,	D. Burt, expenses of Institutes, March	$300 00
April 11,	D. Burt, expenses of Institutes	500 00
May 25,	D. Burt, expenses of Institutes	365 00
July 20,	D. Burt, expenses of Institutes, July and August	500 00
Aug. 15,	D. Burt, expenses of Institutes, August	300 00
Sept. 1,	D. L. Kiehle, expenses of Institute, September	500 00
Oct. 27,	D. L. Kiehle, expenses of Institute, October	300 00
		$2,765 00

EXPENDITURES OF INSTITUTES AS FOLLOWS.

Alexandria	$198 10
Benson	211 15
Currie	153 30
Elk River	211 45
Glenwood	231 79
Grand Meadow	69 25
Glyndon	136 30
Litchfield	223 86
Lake Park	127 75
Madelia	121 20
Preston	111 00
Plainview	57 50
Redwood Falls	136 69
Saint Cloud	181 60

Willmar	136 90
Winona	371 53
Traveling expenses, D. Burt	30 00
	$2,709 37

FISH COMMISSIONERS.

1881.		
Jan. 20,	R. O. Sweeny, expenses, hatching, &c	$200 00
Mar. 21,	R. O. Sweeny, expenses, caring for fish, &c	500 00
May 2,	R. O. Sweeny, hatching and distributing fish	1,000 00
July 22,	R. O. Sweeny, expenses, distributing fish	500 00
Sept. 23,	R. O. Sweeny, expenses, propagating and freight	1,500 00
		$3,700 00

AGRICULTURAL SOCIETIES.

1881.		
Aug. 11,	C. A. Wheaton, Treasurer, appropriation to State Society.	$1,000 00
Sept. 15,	Anoka County Agricultural Society appropriation	54 05
15,	Becker County Agricultural Society appropriation	54 05
15,	Blue Earth County Agricultural Society appropriation	54 05
15,	Brown County Agricultural Society appropriation	54 05
15,	Carver County Agricultural Society appropriation	54 05
15,	Chisago and Pine Counties Agricultural Society appropriation	54 05
15,	Chippewa County Agricultural Society appropriation	54 05
15,	Clay County Agricultural Society appropriation	54 05
15,	Dakota County Agricultural Society appropriation	54 05
15,	Dodge County Agricultural Society appropriation	54 05
15,	Faribault County Agricultural Society appropriation	54 05
15,	Fillmore County Agricultural Society appropriation	54 05
15,	Goodhue County Agricultural Society appropriation	54 05
15,	Isanti County Agricultural Society appropriation	54 05
15,	Jackson County Agricultural Society appropriation	54 05
15,	Le Sueur County Agricultural Society appropriation	54 05
15,	Lac qui Parle County Agricultural Society appropriation	54 05
15,	Lyon County Agricultural Society appropriation	54 05
15,	McLeod County Agricultural Society appropriation	54 05
15,	Martin County Agricultural Society appropriation	54 05
15,	Meeker County Agricultural Society appropriation	54 05
15,	Murray County Agricultural Society appropriation	54 05
15,	Nicollet County Agricultural Society appropriation	54 06
15,	Nobles County Agricultural Society appropriation	54 06
15,	Olmsted County Agricultural Society appropriation	54 06
15,	Otter Tail County Agricultural Society appropriation	54 06
15,	Redwood County Agricultural Society appropriation	54 06
15,	Renville County Agricultural Society appropriation	54 06
15,	Rice County Agricultural Society appropriation	54 06
15,	Scott County Agricultural Society appropriation	54 06
15,	St. Louis County Agricultural Society appropriation	54 06
15,	Stevens County Agricultural Society appropriation	54 06
15,	Wadena County Agricultural Society appropriation	54 06

Sept. 15,	Waseca County Agricultural Society appropriation........	$54 06
15,	Washington County Agricultural Society appropriation...	54 06
15,	Watonwan County Agricultural Society appropriation.....	54 06
15,	Wright County Agricultural Society appropriation........	54 06
		$3,000 00

STATE HORTICULTURAL SOCIETY.

1881.		
Sept. 6,	N. S. Hollister, order of President of Society............	$131 00

FARMER BOARD OF TRADE.

1881.		
Jan. 8,	Geo. Giles, secretary, per diem and expenses board........	$318 80
Sept. 6,	Geo. Giles, per diem of members, September session......	54 00
		$372 80

SUPERINTENDENT, FRUIT FARM.

1881.		
Jan. 3,	Peter M. Gideon, services, December, 1880...............	$83 37
April 4,	Peter M. Gideon, services and labor, quarter ending Mar. 31	250 00
July 12,	Peter M. Gideon, services, quarter ending June 30th, 1881.	250 00
Sept. 6,	Peter M. Gideon, services, July and August..............	166 67
Oct. 5,	Peter M. Gideon, services, September....................	83 33
Nov. 2,	Peter M. Gideon, services, October.................... ..	83 33
		$916 70

MISSISSIPPI RIVER COMMISSION.

1881.		
Nov. 30,	Platt B. Walker, expenses attending conventions at Louisville, St. Louis and Davenport........................	$350 00

REGISTERS' AND RECEIVERS' FEES.

1881.		
April 13,	J P. Owens, list of lands, Taylor Falls district............	$10 50
13,	M. C. Russell, list of lands, Duluth district...............	17 15
28,	Soren Listoe, list of lands, Fergus Falls district...........	20 95
28,	F. C. Choate, list of lands, Crookston district..............	22 55
28,	Wm. P. Dunnington, list of lands, Redwood Falls district.	11 60
28,	C. B Taylor, list of lands, Tracey district................	16 30
28,	D. H. Freeman, list of lands, St. Cloud district...........	17 50
28,	H. A. Grinager, list of lands, Worthington district.......	14 95
28,	D. S. Hall, list of lands, Benson district.....	51 15
		$182 65

MINNESOTA NATIONAL GUARD.

1881.		
Oct. 24,	Wm. Dawson, Treasurer, Allen Light Guard.............	$300 00
Nov. 11,	Wm. McTeague, Treasurer, Emmett Light Artillery......	300 00
30,	Herman Scheffer, Treasurer, St. Paul Guards.............	300 00
30,	Gustav Fisher, Treasurer, Governor's Guards............	300 00
30,	W. H. Garlock, Treasurer, Winona Guards....	300 00
		$1,500 00

SELLING STATE LANDS.

1880.			
Dec.	22,	Z. Handerson, examining section 36, town 35, range 37...	$3 50
	24,	O. P. Whitcomb, expenses attending land sale, Otter Tail county, November	21 80
1881.			
Jan.	11,	Z. W. Chase, examining and appraising State lands	32 50
	20,	Andrew Hanson, services appraising lands, Chippewa Co.	51 00
Feb.	2,	W. D. Washburn & Co., boomage on logs at Anoka	33 34
	18,	L. G. Worthington, appraising lands, Morrison county	38 75
March	7,	M. D. Kenyon, expenses in case in Houston	14 00
	7,	A. H. Brayton, sundry expenses in case, Brayton vs. Richardson	12 26
	9,	Eugene Dugas, services examining pine timber on State lands	18 00
	14,	Geo. A. Brackett, services superintending examinations of pine lands	300 00
April	16,	Z. W. Chase, scaling timber	222 70
	18,	H. H. Newberry, survey of section 16, town 35, range 20.	19 00
May	21,	Geo. A. Brackett, recording permits and marks	6 50
June	8,	K. T. Hazelberg, appraising lands, Yellow Medicine county, 18 days	54 00
	8,	W. H. Griswold, clerk, land sale, Stevens county	3 00
	8,	H. Enstrom, clerk, land sale, Kittson county	3 00
	8,	H. N. Tibbets, appraising lands, Yellow Medicine county, 18 days	54 00
	8,	Geo. E. Olds, services and team appraising land in Yellow Medicine county, 19 days	104 50
	9,	O. P. Whitcomb, expenses attending land sales, May and June	103 25
	11,	Chas. Hayden, expenses examining pine lands	20 00
	14,	D. Jacobus, services and team appraising lands in Polk Co.	41 50
	14,	O. H. Lucken, services appraising lands, Polk county	24 00
	14,	W. D. Hurlbwk, services appraising lands, Polk county...	24 00
	16,	John W. Waldron, services appraising lands, Kittson Co.	25 50
	20,	L. O. Storla, clerk, land sale, Clay county	3 00
	24,	J. M. Van Schaack, clerk, land sale, Redwood county	3 00
	27,	O. P. Whitcomb, expenses attending adjourned sale, Big Stone county	22 90
	27,	W. R. Brown, appraising lands, Big Stone county	88 00
	27.	W. R. Sawyer, appraising lands, Big Stone county	78 00
	27,	Henry Bordewick, clerk, land sale, Yellow Medicine county	3 00
	27,	W. H. Campbell, appraising lands, Big Stone county	128 00
	27,	R. H. Chapman, subdividing lands, Big Stone county	35 25
	27,	C. H. Mero, clerk, land sale, Big Stone county	6 00
July	6,	G. A. Schulze, attending land sale, Lake county	3 00
	8,	J. H. Spencer, services exploring	135 15
	11,	M. E. L. Shanks, services as clerk, land sale, Martin county	3 00
	16,	Chas. C. Wieland, fees on collections at land sale, Lake Co.	16 00
	16,	Joseph Betzler, appraising lands, Lake county	15 00

July	16,	Alex. Boyer, appraising lands, Lake county	$15 00
	16,	Robert Thompson, appraising lands and team hire, Kittson county	19 50
	16,	F. Waggoner, appraising lands, Kittson county	12 00
Aug.	1,	Geo. A. Brackett, services and expenses of J. Marston looking up papers	476 00
	1,	Chas. Kittleson, Treasurer, expenses scaling timber, 2d dist.	593 58
	12,	J. E. Knowlton, estimating timber	21 00
Sept.	9,	Geo. A. Brackett, scaling timber	193 35
	27,	Albert Scheffer, cashier, taxes on lands in Pine county to secure lien of State	215 30
Oct.	26,	John S. Proctor, services and expenses appraising pine timber, 1st district	99 00
	29,	W. D. Hurlbut, services appraising lands, Polk county	42 00
	29,	O. P. Whitcomb, expenses attending land sales, Oct., 1881	55 25
	29,	O. H. Lucken, services appraising lands, Polk county	42 00
	29,	James Lambert, services appraising lands, Morrison county	3 00
	29,	J. J. Gross, services appraising lands, Morrison county	3 00
	29,	D. Jacobus, services and team appraising lands, Polk Co.	74 50
	31,	L. G. Worthington, services appraising lands, Morrison Co.	3 00
Nov.	1,	A. G. Perkins, appraising lands, Pine county	12 75
	1,	John Schafer, appraising lands, Stearns county	15 00
	1,	B. H. Winslow, appraising lands, Stearns county	15 00
	4,	Samuel Estes, appraising lands, Pine county	12 80
	4,	J. E. Knowlton, estimating pine timber, 5th district.	205 80
	5,	Geo. A. Brackett, estimating pine timber, 2d district	303 40
	7,	J. C. Black, appraising lands, Carlton county	9 00
	7,	L. W. Green, appraising lands, Carlton county	18 00
	7,	James P. Hayes, appraising lands, Carlton county	18 00
	15,	B. H. Winslow, appraising lands, Stearns county	10 00
	15,	John Schafer, appraising lands, Stearns county	5 00
	23,	James P. Nelson, appraising lands, Marshall county	64 50
	23,	Thomas Sexton, appraising lands, Lake county	15 00
	29,	J. B. Titus, appraising lands, Marshall county	64 50
	30,	M. A. Wallan, services attending land sale, Pope county	3 25
	30,	M. B. Chadwick, services attending land sale, Steele county	3 25
	30,	E. S. Pettijohn, services attending land sale, Nicollet Co.	3 00
	30,	G. B. Phelps, services attending land sale, Meeker county.	3 00
	30,	E. K. Rovevud, services attending land sale, Houston Co.	3 00
	30,	J. P. Nord, services attending land sales, Chisago county	3 00
	30,	M. Mayer, services attending land sale, Scott county	3 00
	30,	Geo. Knudson, services attending land sale, Watonwan Co.	3 00
	30,	H. H. Hawkins, services attending land sale, Carlton Co.	3 00
	30,	G. W. Hard, services attending land sale, Fillmore Co.	3 00
	30,	Fred. A Hodge, services attending land sale, Pine county	3 00
	30,	Geo. Giddes, services attending land sale, Anoka counto	3 00
	30,	J. W. Glassford, services attending land sale, Sherburne Co.	3 00
	30,	F. C. Field, services attending land sale, Wadena counby	3 00
	30,	Jas. G. Foley, services attending land sale, Washington Co.	3 00

Nov. 30,	Hans Engberg, services attending land sale, Isanti county..	$3 00
30,	F. S. McDonald, services attending land sale. Hennepin Co.	3 00
30,	John Cromb, services attending land sale, Becker county..	3 00
30,	H. B. Constans, services attending land sale, Brown county	3 00
30,	C. E. Crane, services attending land sale, Waseca county..	3 00
30,	H. A. Seigneural, services attending land sale, Sibley Co...	6 00
30,	W. W. White, services attending land sale, Faribault Co..	3 00
30,	C. C. Webster services attending land sale, Goodhue Co...	3 00
30,	G. Q. Slocum, services attending land sale, Freeborn Co...	3 00
30,	J. M. Severns, services attending land sale Chippewa Co...	3 00
30,	R. B. Basford, services attending land sale, Winona Co....	3 00
30,	A. J. W. Thompson, services attending land sale, Dakota Co.	3 00
30,	P. McGuire, services attending land sale, Polk county.....	12 00
30,	Burney Vosburg, services attending land sale, Stearns Co..	6 00
30,	M. Thoeny, services attending land sale, McLeod county...	3 00
30,	T. Bordsen, services attending land sale, Douglas county...	6 00
30,	T. Scattergood, services attending land sale, Blue Earth Co.	3 00
30,	J. N. Stacy, services attending land sale, Wright county..	6 00
30,	Harold Swenson, services attending land sale, Kandiyohi Co	6 00
30,	J. D. Lachance, services attending land sale, Morrison Co..	3 00
30,	J. S. Proctor, services appraising pine timber, 1st District..	49 00
30,	T. W. Wilson, paid George A. Brackitt, Surveyor General, on scalage bills..................................	315 00
		$4,899 13

STATE LAND AGENT.

1881.		
April 11,	W. P. Jewett, services and expenses adjusting Salt Spring grant, &c.........	500 00

SELECTING INDEMNITY STATE LANDS.

1881.		
May 4,	James H. Spencer, on account services in Taylors Falls District..	$100 00
June 6,	James H. Spencer, on account services in Taylors Falls District..............................	25 00
June 13,	James H. Spencer, balances services in Taylors Falls District	95 70
July 18,	J. P. Owens, Register fees..................................	86 19
Aug. 17,	C. A. Peterson, expenses, &c., selecting lands, Taylors Falls District..	239 55
Sept. 12,	J. P. Owens, services in Taylors Falls District	117 18
Nov. 21,	Samuel Leavitt, services in St. Cloud District.............	164 17
30,	Samuel Leavitt, expenses and services selecting lands.....	131 25
		$959 04

EXPRESSAGE AND MILEAGE.

1881.		
Jan. 15,	Philip Dressel, mileage on land funds, Le Sueur Co.......	$2 80
19,	Charles Kittleson, charges on coupons to N. Y...........	44 25
Feb. 9,	Philip Dressel, mileage Oct. settlement, 1880.............	2 80
11,	Am. Express Co., balance on contract....................	37 50
Mar. 12,	Chas. Kittleson, Treas., ex. charges paid on funds remitted,	2 80

April 21,	Ole Rigg, Jr., mileage, March settlement, Pope Co.......	$4 00
22,	Am. Express Co., services from Feb. to April 17..........	35 00
22,	Philip Dressel, mileage, March settlememt, Le Seuer Co...	2 80
28,	Chas. C. Wieland, mileage, March settlement, Lake Co...	10 00
30,	Chas. Kittleson, Treas., ex. charges paid on remittances from counties....................................	7 95
May 31,	Chas. Kittleson, Treas., charges on funds transmitted by several counties	1 80
31,	C. M. Anderson, mileage, five settlements, Lac qui Parle Co.	12 00
June 18,	Chas. Kittleson, Treas., ex. charges and exchange........	9 15
20,	O. W. Olson, mileage, June settlement. Grant Co.........	2 80
July 15,	Chas. Kittleson, Treas., express charges on remittances from counties collecting coupons.......................	98 70
20,	Ole Rigg, Jr., mileage, June settlement, Pope Co........	4 00
21,	Chas. Kittleson, charges on $4000 Mo. 6's................	15 00
26,	Chas. Kittleson, Treas., express charges and exchange on $4000 Mo. 6's...	10 25
28,	Chas. Kittleson, Treas., express charges and exchange on $18,000 Mo. 6's......................................	45 00
29,	Chas. Kittleson, Treas., express and exchange paid on remittances from counties................	59 42
30,	Philip Dressel, mileage, June settlement, Le Sueur Co....	2 80
Aug. 2,	Chas. C. Wieland, mileage, June settlement, Lake Co.....	10 00
Aug. 4,	Chas. Kittleson, Treas., express and exchange on $5,000 Mo. 6's..	$21 25
10,	Chas. Kittleson, State Treasurer.........................	10 00
16,	Chas. Kittleson, excpress charges and exchange on remittances	45 75
17,	A. Currie Sr., mileage June settlement Murray Co.... ...	2 60
Oct. 29,	Chas. Kittleson, express charges and exchanges paid......	10 74
Nov. 23,	A. Currie Sr., mileage Oct. settlement Murray Co........	2 60
30,	Ole Rigg Jr., mileage Oct. settlement Pope Co............	4 00
		$518 76

FUEL AND LIGHTS.

1880.		
Dec. 24,	L. J. Lee, repairing boiler................................	$13 20
1881.		
Jan. 3,	St. Paul Water Co., water to July 1, 1881............. ...	71 25
6,	St. Paul Gas Light Co., gas, December....................	134 94
Feb. 4,	St. Paul Gas Light Co., gas, January.....................	175 10
9,	Smith & Lewis, wood and coal............................	260 75
March 8,	St. Paul Gas Light Co., gas, February....................	212 90
April 2,	John Dowlan, eight cords wood...........................	52 00
5,	Haycock & Co., half cord wood...........................	4 00
16,	A. Winter, case matches....	8 00
22,	Geo. R. Morton, sundries..........	21 03
26,	Smith & Lewis, coal and wood............................	896 05
26,	Griggs & Foster, coal and wood.............	44 35
26,	George Mitsch, scraper for boiler, &c.....................	1 75

May	5,	Swan Swenson, services as fireman, half month	$90 00
June	9,	Smith & Lewis, wood and coal	73 57
	29,	St. Paul Water Co., water six months, ending Dec. 3, 1881,	71 25
Aug.	18,	Chas. E. Chapel, case matches	8 25
Sept.	3,	St. Paul Dispatch Co., advertising proposals for coal and wood	8 25
	23,	Pioneer Press Co., advertising proposals for fuel	7 10
Oct.	1,	Daily Globe, advertising for coal and wood	8 25
	5,	Geo. R. Morton, coal, soap, candles, &c	5 06
Nov.	30,	People's Insurance Co., insurance for one year	65 00
	30,	Geo. R. Morton, candles, oil, &c	7 21
	30,	Smith & Lewis, coal and wood	716 12
			$2,955 38

SHERIFFS' FUND.

1880.			
Dec.	20,	N. R. Thompson, one prisoner, Hennepin Co	$ 7 50
	20,	M. Mickley, one prisoner, Stearns Co	27 10
	20,	M. S. Chandler, one prisoner, Goodhue Co	30 00
	22,	W. H. White, four prisoners, Olmsted Co	95 75
	22,	Thos. Downs, one prisoner Nicollet Co	41 50
	24,	N. R. Thompson, one prisoner, Hennepin Co	7 50
1881.			
Jan.	7,	B. F. Zarracher, three prisoners, Polk Co	129 50
	10,	Theo. Weiland, one prisoner, Scott Co	14 70
	27,	Clark Chambers, one prisoner, Steele Co	20 45
Feb.	4,	F. Richter, three prisoners, Ramsey Co	14 50
	15,	John F. Newton, one prisoner, Hastings Co	10 30
	25,	J. M. Eustis, two prisoners, Hennepin Co	13 50
Mrch	10,	Fred. Richter, one prisoner, Ramsey Co	12 80
	10,	J. M. Eustis, five prisoners, Hennepin Co	31 50
April	7,	W. H. Dill, five prisoners, Winona Co	117 25
	20,	W. J. Bodkin, one prisoner, Clay Co	89 00
	28,	W. H. Dill, one prisoner, Winona Co	48 00
May	10,	Joseph Fortier, one prisoner, Yellow Medicine Co	87 35
May	13,	A. J. Mullen, two prisoners, Chippewa Co	68 20
	14,	Ara Barton, two prisoners, Rice Co	27 40
	17,	Fred Richter, one prisoner, Ramsey Co	7 50
	27,	Jacob Larsen, one prisoner, Freeborn Co	46 85
June	1,	T. J. Sheehan, two prisoners, Freeborn Co	87 50
	1,	L. M. Gregg, one prisoner, Wabasha Co	47 00
	4,	J. M. Eustis, four prisoners, Hennepin Co	29 00
	7,	G. Bartelson, one prisoner, Otter Tail Co	76 00
	9,	Geo. A. Blair, three prisoners, Le Sueur Co	92 90
	9,	J. C. Nugent, two prisoners, Wright Co	55 40
	13,	J. C. Mullen, one prisoner, Chippewa Co	65 25
	17,	Clark Chambers, one prisoner, Steele Co	14 75
	20,	A. E. Randall, two prisoners, Big Stone Co	97 93
	24,	Fred Richter, four prisoners, Ramsey Co	22 50
July	9,	J. F. Newton, three prisoners, Dakota Co	28 40

	12,	J. A. Vanstrum, one prisoner, Kittson Co	$131 00
	16,	Fred Richter, one prisoner, Ramsey Co	7 50
	29,	A. L. Gale, one prisoner, Redwood Co	58 70
Aug.	2,	J. M. Eustus, one prisoner, Hennepin Co	12 50
	8,	H. F. Armstrong, one prisoner, Goodhue Co	11 85
	27,	W. H. Dill, one prisoner, Winona Co	45 00
	30,	C. P. Holcombe, one prisoner, Washington Co	4 00
	30,	C. P. Holcombe, three prisoners, Washington Co	7 00
Sept.	27,	Peter Mertz, four prisoners, Crow Wing Co	151 80
Oct.	3,	Peter Mertz, three prisoners, Crow Wing Co	116 00
	7,	Fred Richter, one prisoner, Ramsey Co	8 25
	11,	H. B. Corey, one prisoner, Mower Co	58 75
	12,	Ole J. Urness, two prisoners, Douglas Co	71 90
	13,	J. C. Nugent, three prisoners, Wright Co	84 60
	20,	F. E. DuToit, one prisoner, Carver Co	27 50
	26,	Fred Richter, five prisoners, Ramsey Co	30 00
	26,	Hugh Ferguson, one prisoner Carlton Co	26 80
	28,	Fred Richter, one prisoner, Ramsey Co	7 15
	28,	S. C. McQuade, one prisoner, St. Louis Co	54 50
	29,	Matt Keeley, three prisoners, Waseca Co	77 75
Nov.	8,	J. M. Eustis, four prisoners, Hennepin Co	15 50
	10,	W. H. Dill, four prisoners, Winona Co	104 50
	12,	J. M. Eustis, five prisoners, Hennepin Co	29 00
	23,	J. M. Eustis, one prisoner, Hennepin Co	8 80
	23,	C. P. Holcombe, two prisoners, Washington Co	5 50
	25,	C. P. McGinnis, one prisoner, Stearns Co	45 25
	29,	J. M. Eustis, one prisoner, Hennepin Co	13 50
	29,	Andrew Hopper, one prisoner, McLeod Co	41 00
	30,	Ara Barton, two prisoners, Rice Co	36 70
	30,	C. P. Holcombe, one prisoner, Washington Co.	4 00
	30,	Geo. A. Blair, two prisoners, Le Sueur Co	74 13
	30,	W. H. White, one prisoner, Olmsted Co	30 80
	30,	B. F. Zarracker, three prisoners, Polk Co	140 45
	30,	Clark Chambers, two prisoners, Steele Co	40 50
	30,	Peter Schwietzer, two prisoners, Blue Earth Co	68 75
			$3,215 71

REQUISITION FUND.

1881.			
Jan.	13,	A. J. Mullen, expenses case of Ryan, Chippewa Co	90 45
	21,	H. M. Banks, expenses case of Woodworth, De Wolfe and Haines	139 40
Aug.	1,	John O'Conner, case, Gus Brill	25 50
Oct.	3,	D. F. Morgan, cases, J. Williams and J. Mentz	162 50
	4,	John Brisett, case, John Liddy	70 00
Nov.	10,	E. H. Hollinshead, case, J. P. Jones	54 00
			$541 85

ARREST AND CONVICTION OF HORSE THIEVES.

1881.			
Jan. 13,	Treasurer,	Stearns county, one reward	$200 00
18,	do	Winona county, one reward	200 00
Mar. 19,	do	Brown county, one reward	200 00
24,	do	Douglas county, one reward	200 00
26,	do	Hennepin county, one reward	200 00
28,	do	Wright county, four rewards	800 00
30,	do	Waseca county, one reward	200 00
30,	do	Olmstead county, one reward	200 00
Apr. 16,	do	Freeborn county, one reward	200 00
22,	do	Polk county, three rewards	600 00
July 7,	do	Yellow Medicine county, one reward	200 00
15,	do	Chippewa county, one reward	200 00
15,	do	Hennepin county, one reward	200 00
23,	do	Chisago county, one reward	200 00
26,	do	Rice county, one reward	200 00
30,	do	Dakota county, one reward	200 00
Nov. 23,	do	Le Sueur county, one-half reward	100 00
30,	do	McLeod county, one reward	200 00
30,	do	Wright county, one reward	200 00
			$4,700 00

TREE PLANTING CLAIMS.

1881.		
March 30,	S. F. Hemingway. 2 acres	$ 4 00
	A. J. Gilman, 6 acres	12 00
	T. D. Jones, 2 acres	4 00
	Joshua Wiley, 1 acre	2 00
	Thos. Hughes, 3 acres	6 00
	A. Tweed, 1 acre	2 00
	H. Hillekom, 2 acres	4 00
	Hiram Bond, 1 acre and ½ mile	4 00
	P. H. Macomber, 4 acres	8 00
	Oliver Hughes, 12 acres	24 00
April 1,	John Bagen, 1 acre	2 00
	S. P. Bentley 1 acre	2 00
	Dommick Bertrand 3 acres	6 00
	E. P. Bertrand, 5 acres	10 00
	C. E. Brandt, 5 acres	10 00
	James Clancy, 2 acres	4 00
	W. J. W. Cunningham, 4 acres	8 00
	John Cutting, 1 acre	2 00
	Edward Grimes, 3 acres	6 00
	Wm. Grimes, 6 acres	12 00
	Betsy Harnson, 4 acres	8 00
	Robert Henton, 2 acres	4 00
	Frederick Koenig, 1 acre	2 00
	Anton Cotton, 1 acre	2 00
	Wm. Miner, 3 acres	6 00

April	1,	N. Prickett, 2 acres	$4 00
		Wm. Rasaback, 6 acres	12 00
		F. Shubert, 2 acres	4 00
		E. A. Traxel, 5 acres	10 00
		John Upson, 2 acres.	4 00
April	2,	J. Hurly, 2 acres	4 00
		J. J. Goar, 3 acres	6 00
		H. D. Wylie, 5 acres	10 00
		Aaron Schofield, 1 acre.	2 00
		W L. Taylor, 1 acre and ½ mile	4 00
		J. B. Jones, ½ mile	2 00
		Amos Rank, 2 acres	4 00
		R. Miller, 1 acre	2 00
		S. Huntington, 2 acres	4 00
	2,	George McKean, four acres	8 00
	2,	James Brown, seven acres and half mile	16 00
	2,	Leroy Hillman, 23 acres and half mile	48 00
	4,	M. Nawman, five acres	10 00
	4,	A. Bartlett, 23 acres	46 00
	4,	H. W. Holly, six acres	12 00
	4,	S. W. Jennis, three acres	6 00
	4,	S. W. Cahoon, three acres	6 00
	4,	I. P. Humes, five acres and four miles	26 00
	4,	W. A. Miller, six acres	12 00
	4,	N. McColly, six acres	12 00
	4,	Ole Emerson, 18 acres	36 00
	4,	J. W. Young, two acres	4 00
	4,	E. A. Pond, three acres	6 00
	4,	Jas. Ogilvie, two acres	4 00
	4,	Lorenzo Nichols, tw es	4 00
	4,	B. R. Whitney, seven acres	14 00
	4,	S. Wagner, three acres	6 00
	4,	H. E. Logvold, one acre	2 00
	4,	L. R. Woodrich, one acre	20 00
	4,	W. F. Lawrance, three acres	6 00
	4,	Abram Foster, half mile	2 00
	4,	B. A. Stowe, four acres	8 00
	4,	Geo. Hassig, six acres	12 00
	4,	J. Wilson, Sen., six acres	12 00
	4,	J. Wilson, Jr., four acres	8 00
	4,	John Emerson, two acres	4 00
	4	F. M Pierce, two acres	4 00
	4,	E. Eberline, two acres	4 00
	4,	Wm. Dinsmore, four acres	8 00
	4,	R. B. Johnson, three acres	6 00
	4,	John Kennedy, three acres	6 00
	4,	Jos. Claggett, two acres	4 00
	4,	B. H. Langworthy, two acres	4 00
	4,	Louis Claude, two acres	4 00

April	4,	T. D. Stodlen, four acres	$8 00
	4,	Gustav Claude, two acres	4 00
	4.	D. M. Houston, one acre	2 00
	4,	Anthony Grissey, five acres	10 00
	4.	G. D. Bassett, two acres and half mile	6 00
	4,	J. M. Showalter, one acre and half mile	4 00
	4,	Jacob Bachlte, four acres	8 00
	4,	F. Johnson, one acre	2 00
	4,	G. D. More, nine acres	18 00
	4,	Jas. Beard, three acres	6 00
	4,	C. C. Briggs, five acres	10 00
	4,	Orson Reed, two acres	4 00
	4,	G. A. Gilbert, one acre	2 00
	4,	Rufus Johnson, nine acres	18 00
	4,	Mrs. H. E Root, six acres	12 00
	4,	J. M. Spencer, two acres	4 00
	4,	L. A. Rallestad, three acres	6 00
	4.	John Carson, four acres	8 00
	4,	Louisa Tenske, four acres	8 00
	4,	C S. Dunbar, two acres	4 00
	4,	H. O. Ives, two acres	4 00
	4,	C. S. Sjolden, one acre	2 00
	4,	A. E. Champerry, three acres	6 00
	4,	Robert Moore, three acres	6 00
	4,	Andrew J. Talle, one acre	2 00
	4,	J. S. Ordway, two acres	4 00
	4,	John Reed, half mile	2 00
	4,	Chas. Almy, two acres	4 00
	4,	O. F. Mondel, six acres	12 00
	4,	F. Jennings, one acre	2 00
	4,	J. A. Berg, one acre	2 00
	4,	H. Smoots, one acre	2 00
	4,	A. Richards, one acre	2 00
	4,	C. F. Swendson, one acre	2 00
	4,	R. F. Clough, two acres	4 00
	4,	J. A. Jacobson, two acres	4 00
	4.	W. H. Harris, two acres	4 00
	4,	J. Landgren, one acre	2 00
	4,	Jas. G. Marson, four acres	8 00
	4,	J. M. Monroe, one acre	2 00
	4,	Lars Person, one acre	2 00
	4,	John E. Keine, four acres	8 00
	4,	Jas. H. Bardwell, one acre	2 00
	4,	Abner Jarrett, three acres	6 00
	4,	James McCarty, seven acres	14 00
	4,	Horace Chamberlain, three acres	6 00
	4,	Michael Alwan, two acres	4 00
	8,	M. J. Howe, one acre	2 00
	8,	P. Fitzgerald, one acre	2 00

April	8,	Patrick Fitzgerald, one acre	$2 00
	8,	Thos. Donovan, two acres	4 00
	8,	T. N. Johnson, one acre	2 00
	8,	T. Samuelson, two acres	4 00
	8,	Wm. Pickle, four acres	8 00
	8,	Thos. Cushman, two acres	4 00
	8,	Johanna Cotter, four acres	8 00
	8,	John Cotter, two acres	4 00
	8,	L. D. Holmes, seven acres	14 00
	8,	Wm. Morin, eleven acres	22 00
	8,	Edwd. Cotter, three acres	6 00
	8,	Swan Johnson, four acres	8 00
	8,	Nels. Johnson, three acres	6 00
	8,	A. A. Davis, five acres	10 00
	8,	L. F. Scott, four acres	8 00
	8,	R. Fitzgerald, three acres	6 00
	8,	Rebecca West, two acres	4 00
	8,	Michael Fenton, two acres	4 00
	8,	Rich'd Quinn, two acres	4 00
	8,	Wareham Pence, five acres	10 00
	8,	S. J. Fuller, two acres	4 00
	8,	T. W. Purdie, two acres	4 00
	8,	Frank Colt, two acres	4 00
	8,	Wm. Emerson, three acres	6 00
	8,	A. H. Stephens, two acres	4 00
	8,	J. F. Jones, four acres	8 00
	8,	Alex. Schutt, two acres	4 00
	8,	E. G. Moore, one acre	2 00
	8,	M. Fitzgerald, one acre	2 00
	8,	Peter Peterson, two acres	4 00
	8,	J. B. Purdee, four acres	8 00
	8,	S. Gunderson, three acres	6 00
	8,	H. E. Farm, three acres	6 00
	8,	Jno. A. Burdick, five acres	10 00
	8,	Jas. Hansom, one acre	2 00
	8,	L. F. Scott, five acres	10 00
	8,	Amanda Pierce, one acre	2 00
	11,	John Taley, ten acres	20 00
	11,	J. M. Utter, five acres	10 00
	11,	Stephen Rewith, two acres	4 00
	11,	Willliam Schwarz, two acres	4 00
	11,	Catrina Ely, one acre	2 00
	11,	Jas. Randall two acres	4 00
	11,	August Grahlke, two acres	4 00
	11,	E. W. Putz, one acre	2 00
	11,	Daniel Danielson, two acres	4 00
	11,	Ebenezer Johnson, two acres	4 00
	11,	Wm. Allen, three acres	6 00
	11,	J. Drezer, six acres	12 00

April 11,	Jno. Hohenstern, one acre	$2 00
11,	Wm. Bosseau, one acre	2 00
11,	Daniel Collender, one acre	2 00
11,	William Radke, two acres	4 00
11,	Wm. Doll, one acre	2 00
11,	J. W. Root, five acres	10 00
11,	Wm. Doll, one acre	2 00
11,	Fred. Malchon, two acres	4 00
11,	C. W. Malchon, one acre	2 00
11,	C. B. Rubert, two acres	4 00
11,	Erich Kilen, two acres	4 00
11,	J. N. Dodge, four acres	8 00
11,	Sam'l Edwards, two acres	4 00
11,	T. Middlestadt, three acres	6 00
11,	Wm. Wiley, six acres	12 00
11,	Jno. Dobnier, two acres	4 00
11,	G. P. Lee, two acres	4 00
11,	M. S. Barney, five acres	10 00
11,	August Weber, two acres	4 00
11,	Jno. Tayley, one acre	2 00
11,	Wm. A. Moshea, two acres	4 00
11,	H. W. Kimball, twenty acres	40 00
11,	E. T. Mather, ten acres	20 00
11,	Albert Hokenstein, eight acres	16 00
11,	B. K. Craigne, three acres	6 00
11,	Isaac Wheeler, three acres	6 00
11,	Ole Sather one acre	2 00
11,	Wm. M. McClelland, two acres	4 00
11,	Chas Malchon, two acres	4 00
11,	E. Benjamin, two acres and one-half mile	6 00
11,	E. Sevatson, seventeen acres	34 00
13,	Geo. F. Pixley, seventeen acres	34 00
13,	Lewis F. True, five acres and one-half mile	12 00
13,	C. B. Hatch, four acres and one-half mile	10 00
13,	F. L. Livermore, four acres	8 00
13,	Aaron Mulson, two acres	4 00
13,	Evan James, five acres and one-half mile	12 00
13,	O. W. Curtis, fifty-six acres	112 00
13,	August Borchart, three acres	6 00
13,	Chas. Pennington, two acres	4 00
13,	Geo. Murray, two acres	4 00
13,	J. N. Longstreet, four acres	8 00
13,	Chas. Roloff, one acre	2 00
13,	Emma J. Goldsmith, two acres	4 00
13,	Wm. Bradley, one acre	2 00
13,	G. R. Moore, three acres	6 00
13,	Byron E. St. John, four acres	8 00
13,	M. E. St. John, two acres	4 00
13,	Jno. Baker, sixteen acres	32 00

April	13,	Jno. Allison, eight acres	$16 00
	13,	A. G. Ballow, one acre	2 00
	13,	Valentine Wholenten, one acre	2 00
	13,	M. L. Pope, two acres	4 00
	13,	Isaac Kendall, four acres	8 00
	13,	A. H. Anderson, one acre	2 00
	13,	G. M. Wetzell, two acres	4 00
	13,	Helen R. Steele. one acre	2 00
	13,	Jas. E. Steele, one acre	2 00
	13,	W. P. McGhan, one acre	2 00
	13,	E. F. Wade, four acres and one-half mile	10 00
	14,	Mary A Wart, Ex., three acres	6 00
	14,	R. E. Stewart, eight acres	16 00
	14,	N. C. Markham, one mile	4 00
	14,	Geo. Nugent, one acre	2 00
	14,	Flora Dodge, four acres	8 00
	14,	H. P. Bush, one acre and one-half mile	4 00
	14,	W. D. Huntington, two acres	4 00
	14,	A. L. Bush, two acres and one-half mile	6 00
	14,	W. F. Gereer, three acres	6 00
	15,	Elling Fostensen, two acres	4 00
	15,	Ehrich Fostensen, two acres	4 00
	15,	Ole O. Hangen, eight acres	16 00
	15,	W. R. Johnson, five acres	10 00
	15,	James Sharp, two acres	4 00
	15,	N N. Ostrom, eight acres	16 00
	15,	Nicholas Sons, one acre	2 00
	15,	H. Henmanson, two acres	4 00
	15,	Lewis S. Spoon, three acres	9 00
	15,	Ehrich Oleson, one acre	2 00
	15,	O. P. Rume, two acres	4 00
	15,	P. M. Fortjoff, two acres	4 00
	15,	T. Hoff, two acres	4 00
	15,	A. Felt, one acre	2 00
	15,	Leonard Boor, one acre	2 00
	15,	Swen Swensen, three acres and one-half mile	8 00
	15,	Martin Peterson, four acres	8 00
May	12,	Miles Berkett, six acres	12 00
	12,	Henry Faragher, two acres	4 00
	12,	B. F. Thurber, two acres	4 00
	12,	Wm. Parry, five acres	10 00
	12,	J. D. Roberts, two acres	4 00
	12,	J. R. Dewey, six acres	12 00
	12,	Charles M. Smith, five acres	10 00
	12,	James B. Moore, one acre	2 00
	12,	Swan Peterson, two acres	4 00
	13,	Stewart Young, five acres	10 00
	13,	Henry Martin, ten acres	20 00
	13,	Anton Larson, three acres and one-half mile	8 00

May	13,	O. A. Hewlitt, one mile	$4 00
	13,	W. Numberg, three acres	6 00
	13,	Julius Zelmer, one acre	2 00
	13,	F. W. Nunenberg, one acre and one-half mile	4 00
	13,	R. McDowell, four acres	8 00
	13,	F. Miercot, four acres	8 00
	13,	Donald Macnale, three acres and one-half mile	8 00
	13,	J. B. Martin, five acres	10 00
	13,	August Burdsong, four acres	8 00
	13,	James Olsen, one acre	2 00
	13,	Engelbret Larson, one mile	4 00
	13,	L. T. Viste, two acres	4 00
	13,	Christ. Hoefer, two acres	4 00
	13,	Wm. Macnale, one acre and half mile	4 00
	13,	C. Tanbert, two acres	4 00
	13,	Lars Engelbretson, half mile	2 00
	13,	A. H. Grant, two acres	4 00
	13,	J. C. Peterson, three acres	6 00
	13,	Erick Evans, one acre	2 00
	13,	Peter H. Toilun, one acre	2 00
	13,	Jas. B. Shanver, three acres	6 00
	13,	Frank B. Frost, eight acre	16 00
	13,	B. S. Bullis, eight acres and half mile	18 00
	13,	Jno. Nelson, one acre	2 00
	13,	Ole Sivertson, four acres and half mile	10 00
	13,	E. L. Grout, two acres and half mile	6 00
	13,	Simon Skoygard, three acres	6 00
	16,	J. M. Sloan, eight acres	16 00
	16,	J. Hurley, two acres	4 00
	16,	Michael Moran, five acres	10 00
	16,	Chris Awold, two acres	4 00
	16,	Morris Bradford, eight acres	16 00
	16,	Joel Parker, three acres	6 00
	16,	John Hernman, four acres	8 00
	16,	C. E. Slocum, two acres	4 00
	16,	C. D. Ash, two acres	4 00
	16,	James McDonough, eleven acres	22 00
	16,	Kingsley Allen, four acres	8 00
	16,	Holman Morrell, eight acres	16 00
	16,	Erich Wartman, one acre	2 00
	16,	Gustav Johnson, three acres	6 00
	16,	Jno. Nelson, one acre	2 00
	16,	Daniel Pedoin, five acres	10 00
	16,	S. V. Haycroft, one acre	2 00
	16,	N. A. Melick, five acres	10 00
	16,	W. W. Case, three acres	6 00
	16,	John Shilleto, two acres	4 00
	16,	D. H. Forsyth, three acres	6 00
Nov.	11,	Hiram Bornt, one acre and one-half mile	4 00

Nov.	11,	P. Macomber, four acres	$ 8 00
	11,	A. J. Gilman, six acres	12 00
	11,	S. P. Bentley, one acre	2 00
	11,	D. Bertrand, three acres	6 00
	11,	E. P. Bertrand, five acres	10 00
	11,	Bernard Bloemko, three acres	6 00
	11,	James Clancy, two acres	4 00
	11,	W. J. W. Cunningham, seventeen acres and half mile	36 00
	11,	Wm. Cutting, one acre	2 00
	11,	Lars M. Frederickson, four acres	8 00
	11,	Edwd. Grimes, three acres	6 00
	11,	Wm. Grimes, six acres	12 00
	11,	Betsy Hanison, four acres	8 00
	11,	Robt. Henton, two acres	4 00
	11,	Frederick Koenig, one acre	2 00
	11,	Anton Kelton, one acre	2 00
	11,	Elvira Ladd, one acre	2 00
	11,	Hans Meinert, four acres	8 00
	11,	Wm. Miner, three acres	6 00
	11,	John Peterson, three acres	6 00
	11,	Nimrod Prickett, two acres	4 00
	11,	Wm Rossbach, six acres	12 00
	11,	E. A. Traxel, five acres	10 00
	11,	John Upson, two acres	4 00
	11,	Horatio Werring, two acres	4 00
	14,	S. Huntington, two acres	4 00
	14,	R. Miller, one acre	2 00
	14,	Amos Runk, two acres	4 00
	14,	A. Schofield, three acres	6 00
	14,	N. Jones, ten acres	20 00
	14,	James Brown, seven acres and half mile	16 00
	14,	George McKean, four acres	8 00
	14,	Ellis Willson, one acre	2 00
	14,	H. D. Wylie, five acres	10 00
	14,	Jas. J. Goar, three acres	6 00
	14,	John Rohr, four acres	8 00
	15,	W. B. Silliman, eleven acres	22 00
	15,	E. A. Pond, four acres	8 00
	15,	Phoebe L. Young, three acres	6 00
	15,	Kate Moffatt, two acres	4 00
	15,	Frank Barnes, five acres	10 00
	15,	Dennis Hynes, four acres	8 00
	15,	Russell Richardson, one acre and one-half mile	4 00
	15,	J. N. Cahoon, three acres	6 00
	15,	N. McColby, six acres	12 00
	15,	J. W. Young, three acres	6 00
	15,	E. A. Pond, three acres	6 00
	15,	J. Ogelvie, two acres	4 00
	15,	Lorenzo Nichols, two acres	4 00

Nov.	15,	S. Wagner, three acres	$6 00
	15,	H. E. Segvold, one acre	2 00
	15,	Alfred Bartlett, twenty-three acres	46 00
	15,	S. R. Woodwick, one acre	2 00
	15,	James Beard, three acres	6 00
	15,	Oscar Reed, two acres	4 00
	15,	G. A. Gilbert, one acre	2 00
	15,	Rufus Johnson, nine acres	18 00
	15,	H. E. Root, six acres	12 00
	15,	L. A. Hallistad, three acres	6 00
	15,	J. Carson, four acres	8 00
	15,	Louisa Fenske, four acres	8 00
	15,	Christian Spolden, one acre	2 00
	15,	A. E. Champney, three acres	6 00
	15,	Robt. More, two acres	4 00
	15,	Andrew P. Talle, one acre	2 00
	15,	J. S. Ordway, two acres	4 00
	15,	J. Reed, half mile	2 00
	15,	Chas Aling, two acres	4 00
	15,	Ole. T. Mondale, six acres	12 00
	15,	F. Jennings, one acre	2 00
	15,	E. Eberline, one acre	2 00
	15,	J. Kennedy, two acres	4 00
	15,	Montz Nauman, six acres	12 00
	15,	W. F. Lawrence, three acres	6 00
	15,	Geo. Hassing, five acres	10 00
	15,	Abraham Foster, half mile	2 00
	15,	John Wilson, Senr., six acres	12 00
	15,	R. B. Johnson, three acres	6 00
	15,	J. Emerson, two acres	4 00
	15,	F. M. Pierce, two acres	4 00
	15,	Ed. Eberling, one acre	2 00
	15,	Wm. Dinsmore, five acres	10 00
	15,	J. Kenedy, one acre	2 00
	15,	Jos. Claggett, two acres	4 00
	15,	B. H. Langworthy, two acres	4 00
	15,	Lewis Claude, two acres	4 00
	15,	T. D. Stodlein, four acres	8 00
	15,	Gustavus Claude, two acres	4 00
	15,	D. M. Houston, one acre	2 00
	15,	G. D. Bassett, one acre	2 00
	15,	J. Bachlte, four acres	8 00
	15,	Tonton Johnson, one acre	2 00
	15,	G. D. More, 14 acres	28 00
	15,	Anthony Grisey, five acres	10 00
	15,	G. D. Bassett, one acre and half mile	4 00
	15,	J. M. Showater, one acre and half mile	4 00
	15,	C. C. Briggs, six acres	12 00
	15,	J. H. Spencer, two acres	4 00

Nov.	15,	C. S. Dunbar, two acres	$4 00
	15,	H. O. Ives, two acres	4 00
	15,	Robert More, one acre	2 00
	21,	Ed. Cotter, two acres	4 00
	21,	Johannah Cotter, four acres	8 00
	21,	B. Cochlin, one acre	2 00
	21,	Rebecca West, two acres	4 00
	21,	J. W. Emerson, three acres	6 00
	21,	Thos. Douncran, one acre	2 00
	21,	T. Samuelson, two acres	4 00
	21,	W. P. Pickle, four acres	8 00
	21,	A. H. Stephens, two acres	4 00
	21,	Nels Johnson, three acres	6 00
	21,	Svan Johnson, two acres	4 00
	21,	H. E. Towne, three acres	6 00
	21,	M. J. Howe, two acres	4 00
	21,	E. G. Moore, one acre	2 00
	21,	A. A. Davis, five acres	10 00
	21,	M. Fenton, three acres	6 00
	21,	Alex. Schutt, two acres	4 00
	21,	H. F. Chamberlin, three acres	6 00
	21,	Richard Quinn, two acres	4 00
	21,	J. F. Jones, four acres	8 00
	21,	L. D. Holmes, seven acres	14 00
	21,	Amanda Pierce, one acre	2 00
	21,	M. Alman, two acres	4 00
	21,	S. Gunderson, three acres	6 00
	21,	A. Peterson, three acres	6 00
	21,	J. Hanson, one acre	2 00
	21,	L. F. Scott, ten acres	20 00
	21,	T. J. Fuller, two acres	4 00
	21,	J. B. Purdie, four acres	8 00
	21,	F. W. Purdie, two acres	4 00
	21,	E. C. Johnson, one acre	2 00
	21,	M. Fitzgerald, one acre	2 00
	21.	R. Fitzgerald, two acres and one-half mile	6 00
	21,	William Morin, thirty-three acres	66 00
	21,	H. Nelson, one acre	2 00
	21,	W. Pierce, three acres	6 00
	21,	W. Pierce, two acres	4 00
	25,	E. T. Matchers, ten acres	20 00
	25,	J. M Utter, five acres	10 00
	25.	M. T. Barney, five acres	10 00
	25,	R. K. Craigen, three acres	6 00
	25,	H. White, five acres	10 00
	25.	E. Benjamin, two acres and one-half mile	6 00
	25,	Daniel Danielson, two acres	4 00
	25,	James Randall, two acres	4 00
	25,	George Biewer, three acres	6 00

Nov. 25,	Euseba Johnson, two acres	$4 00
25.	George P. Lee, two acres	4 00
25,	Isaac Wheeler, two acres	4 00
25,	Catharine Eba, one acre	2 00
25,	A. R. Kilew, one acre	2 00
25.	Throud Throudson, Jr., four acres	8 00
25,	Erick Sralson, ten acres	20 00
25,	A. Hohenstein, three acres	6 00
25,	C. F. W. Malchow, one acre	2 00
25,	William Doll, one acre	2 00
25,	Charles Malchow, two acres	4 00
25,	Daniel Collander, one acre	2 00
25,	J. W. Root, five acres	10 00
25,	Stephen Rhenett, two acres	4 00
25,	William Schwartz, two acres	4 00
25,	F. Malchow, two acres	4 00
25,	E. W. Pritz, one acre	2 00
25,	Julius Dryer, seven acres	14 00
25,	John Butterfield, one acre	2 00
25,	F. M. Allstodt, three acres	6 00
25.	Wm. Radker, two acres	4 00
25,	A. Weber, two acres	4 00
25,	Wm. Rost, three acres	6 00
25,	H. Roost, four acres	8 00
25,	Helmet Rost, four acres	8 00
25,	A. Rost, five acres	10 00
25,	Wm. Wiley, three acres	6 00
25,	John Dobriner, two acres	4 00
25,	I. N. Dodge, four acres	8 00
25,	W. A. Mosher, two acres	4 00
25,	M. J. Blarsdell, three acres	6 00
28,	John A. Berg, one acre	2 00
28,	Hamson Snoots, one acre	2 00
28,	Alanson Richards, one acre	2 00
28,	C. T. Svendson, one acre	2 00
28,	J. A. Jacobson, two acres	4 00
28,	W. H Hains, two acres	4 00
28,	J. Sundgren, one acre	2 00
28,	J. M. Monson, one acre	2 00
28,	R. F. Clough, two acres	4 00
28,	Johas H. Monson, four acres	8 00
28,	Lars Person, one acre	2 00
28,	John Trulock, three acres	6 00
28,	John Crofoot, three acres	6 00
28,	Geo. H. Bradley, two acres	4 00
28,	Wm. Bradley, one acre	2 00
28,	C. D. Hatch, three acres and one-half mile	8 00
28,	Evan James, five acres and one-half mile	12 00
28,	A. Burchardt, three acres	6 00

Nov.	28,	Chas Roloff, one acre	$2 00
	28,	John Allison, eight acres	16 00
	28,	Isaac Kendall, four acres	8 00
	28,	Aaron Matson, two acres	4 00
	28,	I. F. Pixley, seventeen acres	34 00
	28,	A. G. Batton, one acre	2 00
	28,	O. W. Curtis, fifty-five acres	110 00
	28,	Geo. Murray, two acres	4 00
	28,	John Baker, sixteen acres	32 00
	28,	J. C. Strong, four acres	8 00
	28,	B. E. St. John, four acres	8 00
	28,	M. L. Pope, two acres	4 00
	28,	L. F. True, five acres	10 00
	28,	F. S. Livermore, four acres	8 00
	28,	G. R. Moore, three acres	6 00
	28,	Clara C. Anderson, one acre	2 00
	28,	Alfred Wenberg, two acres	4 00
	28,	Andrew Wenberg, two acres	4 00
			3,876 00

WOLF BOUNTIES.

1881.			
Mch.	12,	Chas. Kittleson, Treasurer, orders redeemed	$ 48 00
	12,	Chas. Kittleson, Treasuaer, orders redeemed	51 00
	19,	Chas. Kittleson, Treasurer, orders redeemed	9 00
	21,	Chas. Kittleson, Treasurer, orders redeemed,	27 00
	22,	Chas. Kittleson, Treasurer, orders redeemed	30 00
	26,	Chas. Kittleson, Treasurer, orders redeemed	12 00
	30,	Chas. Kittleson, Treasurer, orders redeemed	457 00
April	2,	Chas. Kittleson, Treasurer, orders redeemed	110 00
	4,	Chas. Kittleson, Treasurer, orders redeemed	115 00
	5,	Chas. Kittleson, Treasurer, orders redeemed	31 00
	5,	Chas. Kittleson, Treasurer, orders redeemed	20 00
	9,	Chas. Kittleson, Treasurer, orders redeemed	91 00
	13,	Chas. Kittleson, Treasurer, orders redeemed	567 00
	16,	Chas. Kittleson, Treasurer, orders redeeemed	332 00
	21.	Chas. Kittleson, Treasurer, orders redeemed	42 00
	22,	Chas. Kittleson, Treasurer, orders redeemed	107 00
	30,	Chas. Kittleson, Treasurer, orders redeemed	116 00
May	2,	Chas. Kittleson, Treasurer, orders redeemed	10 00
	10,	Chas. Kittleson, Treasurer, orders redeemed	165 00
	10,	Chas. Kittleson, Treasurer, orders redeemed	61 00
	23,	Chas. Kittleson, Treasurer, orders redeemed	72 00
June	18,	Chas. Kittleson, Treasurer, orders redeemed	249 00
	20,	Chas. Kittleson, Treasurer, orders redeemed	24 00
	23,	Chas. Kittleson, Treasurer, orders redeemed	119 00
July	1,	Chas. Kittleson, Treasurer, orders redeemed	355 00
	15,	Chas. Kittleson, Treasurer, orders redeemed	445 00
	21,	Chas. Kittleson, Treasurer, orders redeemed	334 00
	26,	Chas. Kittleson, Treasurer, orders redeemed	1,221 00

July 29,	Chas. Kittleson, Treasurer, orders redeemed	$760 00
Aug. 1,	Chas. Kittleson, Treasurer, orders redeemed	225 00
10,	Chas. Kittleson, Treasurer, orders redeemen	536 00
16,	Chas. Kittleson, Treasurer, orders redeemed	1,008 00
18,	Chas. Kittleson, Treasurer, orders redeemed	117 00
26,	Chas. Kittleson, Treasurer, orders redeemed	53
Nov. 30,	Chas. Kittleson, Treasurer, orders redeemed	27 00
		$7,946 00

ATTORNEY'S FEES, BOND ADJUSTMENT.

1881.		
March 16,	Thomas Wilson, retainer	$250 00
Aug. 11,	Daniel Buck, retainer	100 00
13,	Thomas Wilson, on account fees	500 00
Oct. 5,	Pioneer Press Co., record for tribunal	23 50
Nov. 18,	Thomas Wilson, fees and ameunt paid short hand reporter	1,119 87
18,	Daniel Buck, balance fees	506 63
		$2,500 00

BOND ADJUSTMENT EXPENSES.

1881		
Nov. 30,	Chas. E. Chapel, stamps	$30 00
30,	T. D. Hillman, services, reporting for Claims Commission.	165 00
30,	Pioneer Press Co., printing bonds	1,463 50
		$1,658 50

MISCELLANEOUS APPROPRIATIONS.

1881.		
Feb. 28,	J. Q. A. Ward, parchment for engrossing State Constitution in 1857	$14 50
March 5,	John Patterson, arresting horse thief	75 00
12,	Sam. H. Nichols, administering oaths in 1879 and 1880	284 50
12,	Victor Hjortsberg, compiling manual, 1881	125 00
15,	A. G. Perkins, witness fees	18 50
16,	A. C. Lounsbery, for portraits of ex-Governors	500 00
29,	Capt. Joseph Bobleter, services at Tracy in 1879	128 00
July 2,	Treasurer, Crow Wing county, appropriation	429 93
16,	Treasurer, Murray county, appropriation	300 00
19,	F. von Baumbach, indexing laws	200 00
Nov. 16,	Kenny & Hudner, gas fixtures	42 00
30,	Oliver Wilcox, Treasurer, Pine county, expenses for trial of murderess	750 00
		$2,867 43

PERMANENT SCHOOL FUND.

1881.		
Jan. 12,	Chas. Kittelson, Treasurer, $39,000 U. S. 4's	$39,000 00
March 4,	Aaron H. Brayton, refunded on N. W. ¼ 16-104-4	192 00
July 21,	Chas. Kittelson, Treasurer, $4,000 Mo. 6's	4,000 00
26,	Chas. Kittelson, Treasurer, " " "	4,000 00
28,	Chas. Kittelson, Treasurer, $18,000 " "	18,000 00
Aug. 4,	Chas. Kittelson, Treasurer, $5,000 " "	5,000 00
Nov. 30,	A. D. Cummings, canceled sale Carlton county	800 00
		$70,992 00

GENERAL SCHOOL FUND.

1881		
Jan. 12,	Chas. Kittelson, Treasurer, premium, etc., on $39,000 U. S. 4's	$ 4,972 50
Mar. 4,	Aaron H. Brayton, interest refunded on N.W.¼, 16, 104, 4	67 88
10,	State Treasurer, March apportionment	69,403 60
18,	State Treasurer, supplemental apportionment	113 60
July 21,	Chas. Kittelson, premium, etc., on $4,000 Mo. 6's	648 40
26,	Chas. Kittelson, premium, etc., on $4,000 Mo. 6's	745 50
28,	Chas. Kittelson, premium, etc., on $18,000 Mo. 6's	2,800 00
Aug. 4,	Chas. Kittelson, premium, etc., on $5,000 Mo. 6's	706 25
Oct. 5,	State Treasurer, October apportionment	191,395 60
		$ 270,853 33

GENERAL UNIVERSITY FUND.

1880.		
Dec. 21,	Richard Chute, Treasurer, order of board	$4,000 00
1881.		
Jan. 25,	Richard Chute, Treasurer, order of board	4,000 00
Feb. 24,	Second National Bank, St. Paul, current expenses	5,000 00
Mrch 24,	Richard Chute, Treasurer, order of board	3,000 00
April 11,	Richard Chute, Treasurer, order of board	5,000 00
May 27,	Richard Chute, Treasurer, order of board	4,000 00
June 11,	Richard Chute, Treasurer, order of board	4,000 00
Sept. 17,	Richard Chute, Treasurer, order of board	4,000 00
Oct. 27,	Richard Chute, Treasurer, order of board	5,000 00
Nov. 24,	Richard Chute, Treasurer, order of board	4,000 00
30,	Richard Chute, Treasurer, order of board	5,000 00
		$47,000 00

INTERNAL IMPROVEMENT LAND FUND.

1881.		
Sept. 12,	Jno. D. Boyd and F. W. Burnham, refunded on cancelled sale, Otter Tail Co	$41 80

SINKING FUND.

1881.		
April 2,	Chas. Kittleson, Treasurer, redemption of $16,000 Minnesota bonds (seed grain loan of 1878)	$16,000 00
May 2,	Chas. Kittleson, Treasurer, redemption of $25,000 Minnesota bonds (loan of 1873)	25,000 00
Sept. 3,	Chas. Kittleson, Treasurer, redemption of $45,000 Minnesota bonds (loan of 1873)	45,000 00
Sept. 3,	Chas. Kittleson, Treasurer, redemption of $14,000 Minnesota bonds (loan of 1878)	14,000 00
		$100,000 00

INTEREST FUND.

1881.		
Jan. 27,	Chas. Kittelson, treasurer, interest due Jan. 1st	$9,575 00
May 2,	Chas. Kittelson, treasurer, redemption of 16 coupons, loan of 1878	320 00

May 2,	Chas. Kittelson, treasurer, redemption of 25 coupons, loan of 1873	$583 33
Aug. 27,	Chas. Kittelson, treasurer, redemption of 249 coupons, loans of 1873 and 1878	8,220 00
Sept. 3,	Chas. Kittelson, treasurer, redemption of 59 coupons on bonds redeemed	665 00
Sept. 7,	German-American Bank, balance of interest on school text book warrants	122 22
		$19,485 55

BUFFALO RUN BRIDGE, MARTIN COUNTY.

1881.		
May 2,	Joseph Hubner, Geo. Van Amber and Wm. Marston, commissioners	$300 00

CHIPPEWA RIVER BRIDGES, SWIFT COUNTY.

1881.		
Nov. 30,	Treasurer, Swift county	$600 00

CHISAGO LAKE BRIDGE.

1881.		
Nov. 10,	Treasurer of town of Chisago Lake	$500 00

MINNESOTA RIVER BRIDGE.

1881.		
May 18,	Geo. McLane and Hobart H. Howe, commissioners, Traverse county	$300 00

MUSTINKA RIVER BRIDGE.

1881.		
Sept. 13,	Treasurer, Grant county	$50 00

POMME DE TERRE RIVER BRIDGE.

1881.		
July 28,	Treasurer, Grant county	$200 00

SPRINGVALE BRIDGE.

1881.		
Nov. 30,	Treasurer Isanti county	$300 00

RED RIVER BRIDGE.

1881.		
Mar. 17,	H. O. Koppang, Treasurer Otter Tail county	$400 00

WADENA COUNTY, VERNDALE AND KINDRED ROAD.

1881		
Aug. 15,	Z. Handerson, Treasurer, appropriation	$ 400 00

SCHOOL TEXT BOOK FUND.

Warrants issued for books furnished counties, as follows:

Becker	$ 213 71
Benton	214 31
Big Stone	395 59
Blue Earth	210 38
Carlton	49 32
Chippewa	139 24
Chisago	151
Clay	262 58
Cottonwood	129 01

Dakota	$20 76
Dodge	334 38
Douglas	278 74
Faribault	443 21
Fillmore	1,074 46
Freeborn	83 02
Goodhue	93 32
Grant	80 73
Houston	314 66
Isanti	347 87
Jackson	166 44
Kanabec	6 90
Kittson	137 88
Lac qui Parle	87 99
Lake	8 77
Le Sueur	256 75
Lincoln	139 75
Lyon	20 84
McLeod	579 65
Marshall	123 99
Martin	22 32
Meeker	73 97
Mille Lacs	215 83
Morrison	179 99
Mower	662 16
Murray	372 97
Nobles	90 20
Olmsted	106 63
Otter Tail	786 88
Pipe Stone	28 15
Polk	722 95
Pope	322 46
Redwood	430 31
Renville	266 34
St. Louis	30 31
Scott	159 46
Sherburne	61 11
Sibley	194 90
Stearns	374 13
Swift	348 63
Todd	535 09
Traverse	55 12
Wabasha	182 47
Wadena	305 77
Waseca	130 15
Winona	686 23
Wright	460 49
Yellow Medecino	169 62
	$14,340 46

STATEMENT "R."

Unexpended balances of appropriations of 1881 and former years, December 1st, 1881, and appropriations for 1882; the amount of warrants drawn during the fiscal year 1882, and unexpended balances, November 30. 1882.

APPROPRIATIONS.	Balances December 1st, 1881.	Warrants Drawn 1882.	Balances November 30, 1882.	LAW.	
				Year	Page.
Lac qui Parle river bridge	$ 350 00		$ 350 00	1874	386
Spunk Brook and Two Rivers bridge	400 00		400 00	1874	204
Lake Shetek bridge	300 00		300 00	1875	420
Preparing and publishing tax laws	1,000 00			1876	123
Extraordinary expenses—capture Northfield robbers	27 44	1,000 00	27 44	1877	178
Soldiers' orphans	144 46		144 46	1878	178
Auditors' extra clerks	712 30		712 30	1879	262
Selecting University lands	500 00	321 25	178 75	1879	121
Printing, advertising and binding	9,492 28	5,181 10	4,311 18	1879	121
Supreme Court Reports, vol. 27	1,200 00	1,200 00		1879	121
Stationery	68 68		68 68	1879	121
Furniture and apparatus for University.	2,000 00		2,000 00	1879	132
Water supply, University	1,000 00	1,000 00		1879	132
St. Paul, for capital sewer	500 00		500 00	1879	123
Deaf, dumb, and blind support	1,750 89	1,750 89		1879	129
Auditors' extra clerks	289 42	225 00	64 42	1877 1879	262 166
Stationery	40 86		40 86	1879	124
State Foresty Association	3 95		3 95	1877	254
County and town plats	350 00		350 00	1879	125
Enlarging University grounds	20,000 00		20,000 00	1879	132
Printing, advertising, and binding	29 51	25 50	4 01	1879	124
Selling State lands	225 63	186 41	39 22	1879	124
Legislative	1 77		1 77	1881	217
Legislative deficiency	292 20	18 00	274 20	1881	92*
Legislative, extra session	28,753 45	28,753 45		1881	88* 98*
Governor's salary	317 24	317 24		1878	91
Secretary's salary	150 00	150 00		1874	261
Auditor and Land Commissioner's salary	250 00	250 00		1874	261
Treasurer's salary	291 74	291 74		1874	261
Attorney General's salary	208 38	208 38		1881	214
Adjutant General's salary	125 00	125 00		1878	91
Supt. Public Instruction, salary	208 35	208 35		1874	261
Railroad Commissioner's salary	250 00	250 00		1874	261
Insurance Commissioner's salary	166 85	166 85		1874	261
Librarian's salary	252 82	252 82		1881	225
Public Examiner's salary	291 70	291 70		1881	132
Janitor's salary	100 00	100 00		1877	85
Engineer's salary	100 00	100 00		1879	97
Fireman and day laborer	60 00	60 00		1879	97
Assistant engineer and night watchman	37 50	37 50		1879	97
Military storekeeper	66 68	66 68		1881 1874	211 261
Messenger	50 00	50 00		1879	97
Governor's private secretary	750 00	750 00		1874	261
Governor's clerk	100 00	100 00		1881	210
Assistant secretary and statiscian	166 74	166 74		1874	261
Secretary's clerk	83 37	83 37		1877	251
Auditor's chief clerk	166 72	166 72		1881	215
Land clerk	125 00	125 00		1878	92
Auditor's extra clerks	565 40	520 01	45 39	1878 1881	125 210
Deputy Treasurer	125 00	125 00		1874	261
Attorney General's clerk,	100 00	100 00		1874	261
Public Instruction clerk	100 00	100 00		1874	261
Insurance Commissioner's clerk	300 00	300 00		1878	165
Superintendent Fruit Farm	166 67	166 67		1878	128
Clerk Supreme Court	125 00	125 00		1874	261
Reporter Supreme Court	150 00	150 00		1874	261
Marshal Supreme Court	100 00	100 00		1874	261
Adjutant General's clerk	100 00	100 00		1881	212
Deputy clerk, Supreme Court	238 92	238 92		1881	215
State Land Agent	1,000 00	822 00	178 00	1881	114
Stationery and document clerk	50 00	50 00		1881	211
Extra clerk, Insurance Commissioner	75 00	75 00		1881	211

STATEMENT "B."—Continued.

APPROPRIATIONS.	Balances December 1, 1881.	Warrants drawn in 1882.	Balances November 30, 1882.	LAW.	
				Year.	Page.
Salaries of Judges	$ 16,049 39	$ 11,851 90	$ 4,197 49	1881 1881	92 *93
Executive contingent	623 38	178 88	444 50	1881	209
Auditor's contingent	1 30		1 30	1881	209
†Attorney General's contingent	263 69	178 25	85 44	1881	209
†Extraordinary contingent	3 11		3 11	1881	221
Insurance Commissioner's contingent	33 27	33 27		1881	209
Public Instruction contingent	84	2 84		1881	209
Library contingent	3 93		3 98	1881	112 209
Public Examiner's contingent	249 79	249 79		1881	209
Selling State lands	867 72	568 07	299 65	1881	210
State University building	30.009 00		30,000 00	1881	225
First Hospital Insane, rebuilding	53,000 00	52,000 00	1,000 00	1881	222
First Hospital Insane, furnishing	10,000 00	7,000 00	3,000 00	1881	222
First Hospital Insane, heating, etc	16,000 00	7,000 00	9,000 00	1881	222
First Hospital Insane, repairs	2,000 00	2,000 00		1881	222
Second Hospital Insane, kitchen	3,000 00	3,000 00		1881	220
Second Hospital Insane, cistern	500 00		500 00	1881	220
Second Hospital Insane, water supply	5,000 00	5,000 00		1881	220
Idiots and Imbeciles building	195 49	195 49		1881	189
Enlargi'g St. Cloud Normal school grounds	350 00	150 00	200 00	1881	216
Insane Support First Hospital	6.028 79	6,028 79		1881	218
Insane Support Second Hospital	4,857 18	3,408 81	1,448 37	1881	218
Deaf, dumb, blind, and imbeciles support	4,827 13	4,074 98	752 20	1881	218
Prison current expenses	9,880 85	6,290 57	3,590 28	1881	218
Training Schools and institutes	235 00	285 00		1877	132
Historical Society	1,138 42	1,138 42		1881	218
State costs	97 58	97 56		1881	210
Selecting Indemnity State lands	5,040 96	1,520 03	3,520 93	1881	210
Printing, advertising and binding	3,553 04	3,547 04	6 00	1881	210
Law Library	3,174 18	3,158 70	15 48	1881	112 210
Binding law books	46 15	8 00	38 15	1881	210
Supreme Court Reports, Vol. 28	400 00	400 00		1881	210
Stationery	92 23		92 23	1881	210 221
†Requisitions	688 00	287 80	400 20	1881	210
Sheriff's expenses	696 59	13 50	683 09	1881	211
Wolf bounties	54 00		54 00	1881	211
Tree planting claims	2,452 00	932 00	1,520 00	1881	211
Express and mileage	569 59	504 47	65 12	1881	210
Fuel and lights	699 86	22 05	677 81	1881	210
Rent of Arsenal and deficiency	108 48	108 48		1881	210
State Board of Health	1,520 68	763 26	757 42	1881	210
State Board of Immigration	447 35	447 35		1881	52 *90
Fish Commissioners	1,500 00	1,500 00		1881	211
State Dairymen's Association	500 00		500 00	1881	227
State Horticultural Society	869 00	869 00		1881	83
†Minnesota National Guard	3,500 00	900 00	2,600 00	1881	149
High School Board	20,000 00	15,814 28	4,185 72	1881	187
Rebuilding Capitol	30,697 99	30,695 85	2 14	1881	232
Capitol roof, etc	7,000 00	7,000 00		1881	211
Boiler room, etc., Capitol	1,500 00	1,500 00		1881	212
Repairs and furnishing Capitol	2,751 38	36 85	2,714 53	1881	210
Furnishing Senate chamber and deficiency	326 84		326 84	1881	211
Watonwan County	54 55	54 55		1881	229
Polk County	1,168 00		1,168 00	1881	231
Chippewa River bridge, Chippewa Co	600 00	600 00		1881	‡861
Sauk River bridge	400 00		400 00	1881	‡859
Red Lake River bridge	1,500 00		1,500 00	1881	‡858
Yellow Medicine River bridge	100 00	100 00		1881	‡862
Big Cottonwood River bridge	250 00	250 00		1881	‡849
Watonwan River bridge	350 00	350 00		1881	‡872
Blue Earth River bridge	300 00	300 00		1881	‡873
Long Prairie River bridge	200 00	200 00		1881	‡879
Rock River bridge	400 00	400 00		1881	‡874
Crow River bridge	200 00		200 00	1881	‡875
Cottonwood River bridge	200 00		200 00	1881	‡876

†Canceled. ‡Special laws.

STATEMENT "R."—Continued.

APPROPRIATIONS.	Amounts Appropriated.	Warrants Drawn in 1882.	Balance November 30, 1882.	LAW.	
				Year.	Page.
Redwood River bridge	$150 00	....	150 00	1881	‡376
Spencer Brook bridge	300 00	....	300 00	"	‡378
Mustinka River bridge	50 00	....	50 00	"	‡380
Lake Winona bridge	400 00	400 00	....	"	‡369
Snake River bridge	350 00	....	350 00	"	‡371
Des Moines River bridge Cottonw'd Co.	500 00	....	500 00	"	‡367
St. Croix River bridge	600 00	....	600 00	"	742
Verndale & Kindred State road bridges	800 00	800 00	....	"	‖195
Albert Lea roads	2,500 00	....	2,500 00	"	‖177
Blue Earth River bridge, Faribault Co.	500 00	500 00	....	"	‖182
Buffalo Lake bridge	150 00	....	150 00	"	‖190
Otter Lake bridge	500 00	....	500 00	"	‖194
Moorhead bridge	2,500 00	....	2,500 00	"	‖196
Watonwan River bridge	250 00	250 00	....	"	‖188
Kandiyohi Lake bridge	500 00	500 00	....	"	‖191
Mantorville River bridge	300 00	300 00	....	"	‖174
Des Moines River bridge, Cottonwood Co	600 00	600 00	....	"	‖191
Chippewa and Lac qui Parle bridge	400 00	400 00	....	"	‖195
Lac qui Parle bridge	500 00	495 00	5 00	"	‖180
Rock River bridge, Pipestone Co	600 00	580 00	20 00	"	‖187
Chippewa River bridge, Pope Co	200 00	200 00	....	"	‖193
Pomme de Terre River bridge	250 00	250 00	....	"	‖181
Rum River bridge	350 00	....	350 00	"	‖187
Lake Victoria bridge	400 00	400 00	....	"	‖183
Rock River bridge, Rock Co	1,500 00	1,500 00	....	"	‖179
Prairie Lake bridge	350 00	350 00	....	"	‖186
Anoka and Princeton road	175 00	175 00	....	"	‖189
Blue Earth River bridge, Blue Earth Co.	700 00	....	700 00	"	‖178
Buffalo Creek bridge	300 00	300 00	....	"	‖182
Rabbit River bridge	200 00	....	200 00	"	185
Elk River bridge	300 00	....	300 00	"	184
Cass county	1,000 00	1,000 00	....	"	‖192
Furniture and apparatus, University	2,000 00	....	2,000 00	1879	133
Grading prison yard	5,000 00	....	5,000 00	1881	§91
Prison fire apparatus	2,500 00	....	2,500 00	"	§91
State Board Immigration deficiency	3,713 43	2,737 66	975 77	"	§90
Deaf, Dumb and Blind Institution, enlarging grounds	5,000 00	4,000 00	1,000 00	" "	§52
Mankato Normal School, enl'g grounds	3,000 00	1,800 00	1,200 00	"	§96
1st Hospital Insane, north wing	10,000 00	....	10,000 00	"	§89
1st Hospital, deficiency and architect	3,000 00	....	3,000 00	"	§89
1st Hospital, temporary building	2,000 00	....	2,000 00	"	§89
Winona Normal School, impr. grounds	4,750 00	4,750 00	....	"	§88
Reform School, cistern	2,000 00	2,000 00	....	"	§87
Fitting legislative halls, market house	22 19	....	22 19	"	§92
Furnishing offices, market house	1,616 25	1,186 79	429 46	"	§92
†Investigating St. Cloud Normal School	1 12	....	1 12	"	§92
State Library, gas fixtures	8 00	....	8 00	"	§93
Stationery, deficiency	761 57	697 41	64 16	"	§92
Publishing laws extra session	3,564 00	671 00	2,893 00	"	§93
Indexing laws extra session	200 00	200 00	....	"	§93
Wolf bounties, deficiency	4,000 00	1,239 00	2,761 00	"	§97
Farmers' Board of Trade	1,000 00	611 35	388 65	"	§98
Printing, adv'ing & binding, deficiency	5,500 00	5,500 00	....	"	§92
Mississippi River Commission	650 00	480 00	170 00	"	§90
Printing paper, deficiency	465 00	308 15	156 85	"	§92
Binding law books, deficiency	400 00	223 70	176 30	"	§47
Law library contingent, deficiency	189 50	189 50	....	"	§92
Removing records to new Capitol	500 00	....	500 00	"	§92
†Bond adjustment expenses	2,341 50	1,724 92	616 58	"	§93
Publishing laws in newspaper, deficiency	902 80	488 00	414 80	"	§92
†Librarian's salary	252 82	166 82	86 00	"	225
†Deputy Clerk Supreme Court	238 92	83 33	155 59	"	215
†State costs	93 73	....	93 73	"	210
Bal. appropriations, 1881 and former yrs.	$419,912 48	$267,975 72	$151,936 76		
Cancelled November 30, 1882	....	....	4,041 77		
In force November 30, 1882	....	....	$147,894 99		

‖Extra Session, Special Laws. §Extra Session, General Laws.

†Canceled. ‡Special Laws.

STATEMENT "R."—Continued.

Appropriations for 1882.

APPROPRIATIONS.	Amounts appropriated.	Warrants drawn.	Balances November 30, 1882.	LAW.	
				Year.	Page.
Governor's salary	$3,800 00	$3,483 27	$316 73	1878	91
Secretary's salary	1,800 00	1,650 00	150 00	1874	261
Auditor and Land Commissioner's salary	3,000 00	2,750 00	250 00	1874	261
Treasurer's salary	3,500 00	2,916 60	583 40	1874	261
Attorney General's salary	2,500 00	2,291 63	208 37	1881	214
Adjutant General's salary	1,500 00	1,375 00	125 00	1878	91
Supt. of Public Instruction	2,500 00	2,083 30	416 70	1874	261
Railroad Commissioner's salary	3,000 00	2,500 00	500 00	1874	261
Insurance Commissioner's salary	2,000 00	1,833 20	166 80	1874	261
Librarian's salary	2,000 00	1,833 26	166 74	1881	225
Public Examiner's salary	3,500 00	3,208 30	291 70	1881	132
Engineer's salary	1,200 00	1,100 00	100 00	1879	97
Fireman and day laborer	720 00	660 00	60 00	1879	97
Assistant engineer and night watchman.	300 00	225 00	75 00	1879	97
Military storekeeper	800 00	733 27	66 73	1881 1874	211 261
Messenger	600 00	550 00	50 00	1879	97
Governor's private secretary	1,500 00	1,125 00	375 00	1874	261
Governor's clerk	1,200 00	1,100 00	100 00	1881	210
Assistant secretary and statistician	2,000 00	1,833 27	166 73	1874	261
Secretary's clerk	1,000 00	916 63	83 37	1877	251
Stationery clerk	600 00	550 00	50 00	1881	211
Auditor's chief clerk	2,000 00	1,833 26	166 74	1881	215
Land clerk's salary	1,500 00	1,375 00	125 00	1878	92
Deputy Treasurer's salary	1,800 00	1,650 00	150 00	1874	261
Attorney General's clerk	1,200 00	1,100 00	100 00	1874	261
Public instruction clerk	1,200 00	1,100 00	100 00	1874	261
Insurance Commissioner's clerk	1,200 00	1,100 00	100 00	1875	165
Insurance Commissioner's extra clerk	300 00	300 00	....	......	......
Supt. of fruit farm	1,000 00	833 33	166 67	1878	128
Adjutant General's clerk	1,200 00	1,100 00	100 00	1881	212
Clerk Supreme Court	1,500 00	1,375 00	125 00	1874	261
Reporter Supreme Court	1,500 00	1,250 00	250 00	1874	261
Marshal Supreme Court	200 00	100 00	100 00	1874	261
Janitor's salary	1,200 00	1,100 00	100 00	1877	85
Salaries Judges Supreme Court	20,000 00	15,999 88	4,000 12	1881 1881	92 93*
Salaries judges 1st district	7,000 00	5,833 20	1,166 80	1881	93
Salaries judges 2d district	10,500 00	8,458 20	2,041 80	1881	93
Salaries judges 3d district	3,500 00	2,916 60	583 40	1881	93
Deputy Clerk Supreme Court	1,000 00	916 63	83 37	1881	215
Salaries judges 4th district	10,500 00	5,648 56	4,851 44	1781 1881	92 93*
Salaries judges 5th district	3,500 00	2,916 65	583 35	1881	93
Salaries judges 6th district	3,509 00	2,916 60	583 40	1881	93
Salaries judges 7th district	3,500 00	2,625 00	875 00	1881	93
Salaries judges 8th district	3,500 00	2,916 60	583 40	1881	93
Salaries judges 9th district	3,500 00	3,052 74	447 26	1881	93
Salaries judges 10th district	3,500 00	2,916 60	583 40	1881	93
Salaries judges 11th district	3,500 00	2,916 64	583 36	1881	93
Salaries judges 12th district	3,500 00	2,333 34	1,166 66	1881	93
Auditor's extra clerks	2,500 00	2,393 26	106 74	1878 1881	125 210
Winona Normal School support	14,000 00	14,000 00	....	1864 1877 1881	145 256 234
Mankato Normal School support	12,000 00	11,023 38	976 62	1869 1877 1881	14 256 234
St. Cloud Normal School support	12,000 00	12,000 00	....	1869 1877 1881	16 256 234
Agricultural societies	3,000 00	2,945 94	54 06	1868	33
Training schools and institutes	3,000 00	3,000 00	....	......	......
Executive contingent	3,000 00	1,341 30	1,658 70	1881	209
Secretary's contingent	400 00	364 83	35 17	1881	209
Commissioner statistics contingent	200 00	185 00	15 00	1878	88
Auditor's contingent	500 00	499 72	28	1881	209
Treasurer's contingent	350 00	248 31	101 69	1881	209
Attorney General's contingent	1,000 00	643 93	356 07	1881	209

STATEMENT "R."—Concluded.

APPROPRIATIONS.	Amounts appropriated.	Warrants drawn.	Balances November 30, 1882.	LAW.	
				Year.	Page.
Insurance Commissioner's contingent	$ 300 00	$ 246 05	$ 53 95	1881	209
Public Examiner's contingent and clerk	1,500 00	1,294 70	205 30	1881	209
Railroad Commissioner's contingent	200 00	96 00	104 00	1881	209
Public instruction contingent	500 00	451 26	48 74	1881	209
Library contingent	300 00	236 28	63 72	1881	112 209
Supreme Court contingent	500 00	500 00	....	1881	210
State law library	1,000 00	465 00	535 00	1881	112 210
Printing paper	8,000 00	4,151 73	3,848 27	1881	210
Stationery	1,000 00	891 22	108 78	1881	210 221
State costs	200 00	95 68	104 32	1881	210
Printing, advertising and binding	10,000 00	9,755 58	244 42	1881	210
Selling State lands	5,000 00	2,467 27	2,532 73	1881	210
State Horticultural Society	1,000 00	500 00	500 00	1881	83
Requisitions	1,000 00	400 55	599 45	1881	210
State Board of Health	2,500 00	1,391 02	1,108 98	1881	210
Express and mileage	1,000 00	493 59	506 41	1881	210
Rent of arsenal	444 00	407 00	37 00	1881	210
Repairs of capitol	3,000 00	....	3,000 00	1881	210
Fuel and lights	3,000 00	2,436 32	563 68	1881	210
Library, rebinding	100 00	....	100 00	1881	213
Arrest and conviction of horse thieves	3,000 00	2,499 98	500 02	1881	210
Wolf bounties	8,000 00	8,000 00	....	1881	211
Sheriff's expenses	3,500 00	2,870 65	629 35	1881	211
Register and Receiver's fees	500 00	347 00	153 00	1881	211
Tree planting claims	5,000 00	2,312 00	2,688 00	1881	211
Fish commissioners	5,000 00	3,000 00	2,000 00	1881	211
Supreme Court reports, vols. 29 and 30	800 00	....	800 00	1881	214
Prison wall, grading, etc	40.000 00	29,609 01	10,390 99	1881	216
Insane support, 1st hospital	105,000 00	98,463 13	6,536 87	1881	218
Insane support, 2d hospital	45,600 00	39,056 37	5,943 63	1881	218
Deaf, dumb blind, and imbeciles support	45,000 00	39,248 33	5,751 67	1881	218
Reform School support	32,000 00	32,000 00	....	1881	218
Prison curreut expenses	55,000 00	45,067 80	9,932 20	1881	218
2d Hospital Insane, building east wing	50,000 00	39,836 90	10,163 10	1881	223
2d Hospital Insane, furnishing east wing	8,000 00	1,000 00	7,000 00	1881	223
2d Hospital Insane, heating east wing	8,000 00	3,500 00	4,500 00	1881	223
2d Hospital Insane, east wing extension	15,000 00	13,209 70	1,790 30	1881	*99
University buildings	30,000 00	....	30,000 00	1881	225
Historical Society	4,000 00	2,253 51	1,746 49	1881	218
Minnesota National Guard	5,000 00	2,961 23	2,038 77	1881	149
1st Hospital Insane, basement and center building	15,000 00	7,000 00	8,000 00	1881	222
Legislative Manual	1,000 00	235 00	765 00	1891	145
Finishing and furnishing capitol	100,000 00	99,993 44	6 56	1881	89‡
†State Board of Equalization	1,500 00	1,190 90	309 10	1881	213
Prison water pipes, extensions of 1879, cancelled in error, 1881	520 00	520 00	....	1879	130
Attorney 12th district	2,201 03	2,201 03	....	1881	183
Idiots' and imbeciles' building	15,000 00	15,000 00	....	1881	189
Permanent school fund	1,033,715 63	1,036,715 63	....	1875	138
General school fund	270,029 07	270,029 07	....	1873	77
Permanent University fund	241,030 00	241,030 00	....	1875	138
General University fund	53,894 13	53,894 13	....	1868	4
Internal improvement land fund	322,000 00	322,000 00	....	1875	138
Sinking fund	104,000 00	104,000 00	....	1875	138
Interest fund	12,495 31	12,495 31	....	.....	.....
School text-book fund	14,600 94	14,600 94	....	1877	159
R. R. adjustment bond interest	88,086 45	88,086 45	....	1881	17‖
Total appropriation of 1882	$2,970,686 56	$2,817,453 99	$153,232 57		
Appropriation of 1882, cancelled	....	....	309 10		
Appropriation of 1882, in force	....	....	$152,923 47		
Bal. of appro'tions of 1882 and prior y'rs.	....	....	147,894 99		
Total appropriations in force Nov. 30, 1882	....	....	$300,818 46		

*Special session.
†Cancelled.
‡Extra session, special laws.
‖Extra session, general laws.

STATEMENT "S."

Showing Total Disbursements by Warrants on the Treasury for the Fiscal Year ending November 30, 1882.

LEGISLATIVE.

REGULAR SESSION—1881.

Senate Deficiency—1881.

Milo White, newspapers as per resolution	$3 00	
T. E. Snow, reading at the secretary's desk as per resolution	10 00	
S. Swanson, for matting and cleaning halls	5 00	
		$18 00

EXTRA SESSION—1881.

Miscellaneous of Senate.

A. G. Wedge, transcribing Journal		150 00

Miscellaneous of House.

Fees and mileage of witnesses before judiciary committee	$44 04	
J. R. Howard, indexing Journal	100 00	
Robert Deakin, transcribing Journal	56 44	
		200 48
		$368 48

SENATE COURT OF IMPEACHMENT.

Trial of E. St. Julien Cox.

Per diem, Senators and officers	$13,220 35	
Per diem, managers	3,130 75	
Per diem and mileage of witnesses	5,589 52	
		$21,940 62

Miscellaneous.

Jas. B. Hayden, certified copies of minutes of court	$11 15
George A. Hillman and Jos. E. Lyons, stenographic reporters	2,875 00
O. G. Miller, printing Journal	2,448 58
West Publishing Co., printing 100 copies index	17 50
J. J. Lemon, printing	91 50
Sherwood Hough, stationery	75
St. Paul Book and Stationery Co., stationery	343 94
T. S. White & Co., stationery	8 46
W. H. Mellen, sergeant-at-arms, expenses serving subpœnaes, &c	285 09
C. M. Reese, assistant sergeant-at-arms, expenses serving subpœnaes, &c	80 98
A. H. Bertram, assistant sergeant-at-arms, expenses serving subpœnaes, &c	34 05
G. F. Miller, service and expenses serving subpœnaes, &c	17 50
C. A. Anderson, keeper of cloak room	70 00
Forest Orton, page of Senate	25 00

Henry G. Hicks, expenses paid	67 75	
De Coster & Clark, use of chairs	30 00	
W. A. Nichols, copying writ of summons	12 00	
W. H. Mellen. paid C. C. Miles and Schillo, & Co., for sundries	14 95	
A. Blanchard, clerical work	3 60	
A. H. Bertram, expenses paid	14 20	
G. W. Putnam, telegrams	5 70	
C. C. Miles, locks and keys	4 65	
		$6,462 35
Total expenses, Court of Impeachment		$28,402 97
Total Legislative expenses		$28,771 45

EXECUTIVE.

Salaries of Officers and Clerks.

John S. Pillsbury, governor	$ 891 09	
L. F. Hubbard, governor	3,409 42	
Pennock Pusey, governor's private secretary	787 50	
S P. Jennison, governor's private secretary	1,087 50	
Frank H. Carlton, governor's clerk	172 27	
W. H. Angell, governor's clerk	1,027 73	
E. Hammon, messenger	600 00	
Executive contingent	1,520 18	
		$8,995 69

Secretary of State.

Fred. Von Baumbach, secretary of state	$1,800 00	
F. S. Christensen, assistant secretary and statistician	1,666 69	
Oscar Malmros, assistant secretary and statistician	333 32	
Victor Hjortsberg, secretary's clerk	1,000 00	
A. W. Petren, stationery and document clerk	600 00	
Secretary's contingent	364 82	
Statistician's contingent	185 00	
		$5,949 84

Auditor and Land Commissioner.

O. P. Whitcomb, auditor and land commissioner	$325 00	
W. W. Braden, auditor and land commissioner	2,675 00	
M. D. Kenyon, auditor's chief clerk	1,899 98	
Wm. H. Kelley, land clerk	250 00	
Thomas Cahill, land clerk	312 50	
J. Q. A. Braden, land clerk	937 50	
Thomas Cahill, Auditor's extra clerks	950 00	
W. L. Vincent, Auditor's extra clerks	799 92	
J. W. Florence, Auditor's extra clerks	1050 00	
Wm. H. Kelley, Auditor's extra clerks	225 00	
Carrie A. Bayard, Auditor's extra clerks	113 35	
Auditor's contingent	499 72	
		$10,037 97

STATE TREASURER.

Charles Kittleson, Treasurer	$3,208 34	
Theodore Sander, deputy	1,775 00	
Treasurer's contingent	248 31	
		$5,231 65

Attorney General.

W. J. Hahn, Attorney General	$2,500 01	
E. F. Lane, Attorney General's clerk	1,200 00	
Attorney General's contingent	822 18	
		$4,522 19

Adjutant General.

H. P. Van Cleve, Adjutant General	$750 00	
A. C. Hawley, Adjutant General	750 00	
E. M. Van Cleve, Adjutant General's clerk	600 00	
H. E. Hawley, Attorney General's clerk	600 00	
C. E. Davis, Military Storekeeper	133 35	
Joseph Burger, Military Storekeeper	799 95	
		$3,633 30

Superintendent of Public Instruction.

D. L. Kiehle, Superintendent	$2,291 65	
C. H. Burt, Public Instruction clerk	400 00	
W. W. Pendegast, Public Instruction clerk	800 00	
Public Instruction contingent	454 10	
		$3,945 75

Railroad Commissioner.

W. R. Marshall, Railroad Commissioner	$325 00	
J. H. Baker, Railroad Commissioner	2,425 00	
Railroad Commissioner's contingent	96 00	
		$2,846 00

Insurance Commissioner.

A. R. McGill, Insurance Commissioner	$2,000 05	
Charles Shandrew, Insurance Commissioner's clerk	1,400 00	
Charles Shandrew, extra clerk hire Ins. Com'r	375 00	
Insurance Commissioner's contingent	279 42	
		$4,054 47

Public Examiner.

Henry McKnox, Public Examiner	$3,500 00	
Public Examiner's Contingent	1,544 50	
		$5,044 50

State Library.

W. H. H. Taylor, State Librarian	$2,000 08	
Johnson, Smith & Harrison, binding law books, Deficiency 1881	207 40	
West Publishing Co., binding law books, Deficiency '81	16 30	
West Publishing Co., binding law books	8 00	
Library Contingent Deficiency 1881	189 50	
Library Contingent	236 28	
		$2,657 56

Clerk of Supreme Court.

S. H. Nichols, Clerk Supreme Court	$1,500 00	
W. A. Nichols, Deputy Clerk Supreme Court	999 96	
Supreme Court Contingent	500 00	
		$2,999 96

Reporter of Supreme Court.

George B. Young, reporter	$1,400 00	
		$1,400 00

Marshal of Supreme Court.

S. H. Nichols	$200 00	
		$20 00

Miscellaneous.

George R. Morton, salary as engineer	$1,200 00	
Charles E. Chapel, janitor's salary	1,200 00	
Martin Nelson, fireman	262 50	
Swan Swenson, fireman and day laborer	720 00	
Peter M. Gideon, superintendent fruit farm, salary	1,000 00	
		$4,382 50

EXECUTIVE CONTINGENT.

1881.			
Dec.	28,	Minneapolis Tribune Co., publishing notice for pardon A. W. Echart	$3 37
1882.			
Jan.	7,	Pennock Pusey, sundry expenses in connection with electoral college	30 00
	7,	E. Hammon, for postage	35 00
	9,	Chas. E. Chapel, moneys advanced, cartage, towels, etc.	13 10
	12,	M. D. Kenyon, U. S. Postal Guide	1 50
	18,	Daily Globe, Jan. 28, '82 to Jan. 1,' 83	7 75
	19,	Chas. Kittelson, rent of safe German American Bank	95 00
	21,	Frank H. Carlton, telegrams exec. departm'nt	2 41
	31,	David Day, postage stamps	54 00
Feb.	7,	N. W. Telephone Co., rent of instrument January, 1882	8 33
	7,	Western Union Telegraph Co., telegrams	5 95
	20,	Joseph Burgher, repairs state arsenal	10 10
March	3,	Pioneer Press Co., envelopes, warrants and commissions	54 50
	16,	Joseph Burger, labor at arsenal	11 50
May	1,	Chas. E. Chapel, postage stamps, etc	40 00
	17,	A. E. Mellgren, seal for secretary's office	35 00
June	9,	Northwestern Telephone Ex. Co., rent of instrument to June 30	24 99
	23,	Peter Griffin, painting artillery carriages, etc.	50 00
	28,	C. A. Ruffee, services and expenses visiting Chippewa Indians	180 00
	29.	Chas. E. Chapel, paid for stamps	61 00
July	3,	W. B. Mitchell, Journal Press one year	2 15
	8,	E. Hammon, flags for decorating capitol	4 00
	11,	W. B. Mitchell, Journal Press six months	1 10
	15,	Geo. T. Gardner, subsistence M. N. Guards	18 00
	15,	S. Wechsler, relief of refugee Jews	50 00
	15,	W. B. Bend, subsistence of band	36 00
	21,	Pioneer Press Co., envelopes	17 25
	26,	Dreis & Mitsch, paint, oils, etc	2 85
	27,	Thos. P. Wilson, Q. M. G., freight on tent poles and pins	79 75
	29,	Joseph Burger, transportation, etc	40 34
Aug.	4,	Jos. Bobleter, transportation	13 80
	5,	G. S. Smith, annual cyclopedia	6 00
Sept.	9,	Carl Guthers, portrait of Gov. Davis	250 00
	15,	Western Union Telegraph Co., telegrams June and July	21 45
	19,	D. W. Ingersoll & Co., towels	3 30
	23,	Pioneer Press Co., daily one year	14 00
	30,	R. L Polk & Co., city directory	4 00
Oct.	2,	A. Winters, Iron Box Matches	4 00
	6,	L. F. Hubbard, damages to U. S. tents, etc	122 38
	14,	Western Union Tel. Co., telegrams, Sept	2 18

	19,	Wm. S. Jacobs, hauling tents, etc...........	2 63	
Nov.	11,	Chas. E. Chapel, postage stamps............	54 00	
	29,	McCarthy & Donnelly, one-half expenses Davis' funeral, workman killed at capitol.	47 50	
				$1,520 18

SECRETARY'S CONTINGENT.

1882.				
Jan.	6,	Fred Von Baumbach, postage, etc...........	$47 75	
	10,	Warren Carpenter, 2 lamps for office........	18 00	
	12,	M. D. Kenyon, U. S. postal guide 1 year.....	1 50	
	16,	Die Volkszietung, subscription 1882.... . .	9 00	
	16,	Pioneer Press Co., Daily and Sunday ed. 1882	14 00	
	18,	H. W. Stewart, copying....................	7 00	
	18,	Daily Globe, daily to Jan. 1, 1883............	7 35	
	26,	Chas. E. Chapel, postage....................	25 00	
Feb.	7,	Fred Von Baumbach, newspapers and extra charges.........	7 75	
	28,	Fred Von Baumbach, postage and express charges................................	22 50	
Mar.	8,	N. W, Telephone Ex. Co., rent telephone Feb	8 33	
	29,	Chas. E. Chapel, postage..................	32 00	
April	20,	Fred Von Baumbach, stamps and express charges	11 00	
May	26,	Fred Von Baumbach, postage and express charges	28 75	
June	6,	R. L. Polk & Co., state directory............	5 00	
	16,	H. A. Castle, Daily Dispatch, 1 year.........	6 00	
July	7.	Chas. E Chapel, postage deposits and stamps	26 00	
Aug.	1,	F. Von Baumbach, express charges and postage	4 75	
Sept.	8,	Chas. E. Chapel, postage..................	28 00	
	21,	Fred Von Baumbach, postage and freight....	5 85	
	30,	R. L. Polk & Co., city directory............	4 00	
Nov.	2,	Ed. Hammon, postage and express charges..	35 80	
	25,	Fred Von Baumbach, postage, &c...........	9 50	
				$364 83

AUDITOR'S CONTINGENT.

1882				
Jan.	9,	Chas. E. Chapel, stamps, and washing towels.	$ 26 00	
	12,	M. D. Kenyon, U. S. postal guide...........	1 50	
	16,	Pioneer Press Co., warrant book and letter heads...	18 50	
	16,	Pioneer Press Co., Daily and Sunday edition 1882.......................	14 00	
	16,	Chas. E. Chapel, postage deposit and cards..	5 50	
	18,	Northwestern Telephone Exchange Co., rent, December, 1881....................	8 33	
	18,	Daily Globe, daily to January 1, 1883........	8 40	
	18,	German American Bank, rent of safe deposit vault....	15 00	
Feb.	2,	Western Union Telegraph Co., telegrams, December and January....................	3 96	
	7,	Chas. E. Chapel, stamps and express charges.	22 25	
	15,	A. E. Melgren, rubber stamp	2 00	
Mch.	8,	Chas. E. Chapel, stamps, etc................	13 96	
	22,	Chas. E. Chapel, stamps.............	21 00	
April	15,	M. D. Kenyon, stamps, express charges, etc..	15 55	
	20,	Pioneer Press Co., letter heads, etc..........	13 45	
	27,	Chas. E. Chapel, stamps, etc................	18 50	
May	4,	Western Union Telegraph Co., telegrams....	1 25	

	6,	West Publishing Co., Northwestern Reporter and binding	$15 90	
	11,	E. Hammon, stamps	21 00	
	22,	Chas. E. Chapel, postage deposit and express charges	9 95	
June	6,	R. M. S. Pease, ink	1 88	
	12,	Chas. E. Chapel, stamps and express charges.	24 00	
	24,	Northwestern Stamp Works, rubber stamps.	9 75	
	30,	Chas. E. Chapel, stamps and express charges.	26 00	
July	10,	Ed. Hammon, stamps and express charges	8 90	
	12,	M. D. Kenyon, postal cards	5 00	
	24,	T. S. White Stationery Co.. letter files	3 50	
Aug.	1,	Northwestern Telephone Exchange Co., use of telephone, State departments, July	8 33	
	22,	Chas. E. Chapel, stamps, telegrams, etc.	16 60	
	25,	Chas. E. Chapel, postage deposit	5 00	
Sept.	14,	Chas. E. Chapel, stamps, etc	23 00	
	30,	R L. Polk & Co., city directory	4 00	
Oct.	6,	Chas. E. Chapel, stamps, etc	30 00	
Nov.	1,	J. Q. A. Braden, express charges on land lists, etc.	15 10	
	8,	Chas. E. Chapel, postal cards	5 00	
	10,	W. W. Braden, stamps	30 66	
	10,	Chas. E. Chapel, postage stamps	27 00	
				$499 72

TREASURER'S CONTINGENT.

1882.				
Jan.	18,	Daily Globe, daily to January 1, '83.	$7 35	
	18,	Chas. Kittelson, Pioneer Press, stamps, etc.	21 00	
Feb.	4,	Chas. Kittelson, postage stamps	17 00	
	25,	Joseph Kittelson, printing cards, etc.	4 75	
Mc'h	31,	Chas. Kittelson, postage stamps	25 00	
April	29,	Chas. Kittelson, postage	20 00	
May	31,	Chas. Kittelson, stamps etc	20 00	
June	1,	Chas. Kittelson, financial chronicle	10 20	
	29,	Chas. Kittelson, postage etc.	25 90	
July	18,	Chas. Kittelson, telegram to N. Y.	3 00	
	31,	Chas. Kittelson, stamps and printing	22 00	
Aug.	29,	Chas. Kittelson, stamps etc	20 00	
Sept.	29,	Chas Kittelson, dispatch and stamps	15 00	
Oct.	5,	Northwestern Tel. Ex. Co., rent instrument, August	8 33	
	31,	Chas. Kittelson, stamps and city directory	25 00	
		Chas. Kittelson, overdraft of 1881	3 78	
				$248 31

ATTORNEY-GENERAL'S CONTINGENT.

1881.				
Dec.	30,	H. T. Beraus, attending to trespass on lands, Big Stone county	$50 00	
	31,	W. J. Hahn, attending court, &c	24 25	
1882.				
Jan.	3,	West Publishing Co., books for office	104 00	
Feb.	1,	W. J. Hahn, attending court	75 70	
March	1,	W. J. Hahn, attending court	53 35	
April	1,	W. J. Hahn, attending court, postage, &c	20 05	
	29,	W. J. Hahn, attending court, &c	123 00	
May	31,	W. J. Hahn, attending court, &c	63 50	
June	28,	R L. Polk & Co., Directory Minnesota and Dakota	5 00	
July	1,	W. J. Hahn, attending court and postage	53 00	
Aug.	3,	W. J. Hahn, attending court and postage	33 00	

	31,	W. J. Hahn, attending court, &c............	$53 50	
Oct.	4,	W. J. Hahn, postage, books, &c.............	7 50	
Nov.	3,	W. J. Hahn, attending court and postage....	75 00	
	3,	N. W. Tel. Ex. Co., use of telephone, Oct....	8 33	
	28,	W. J. Hahn, attending court and postage....	73 00	
				$822 18

STATE COSTS.

1882.				
Jan.	9,	E. J. Davenport, copy of papers St. P. C. R. R. vs. Auditor Hennepin county..........	$3 85	
Feb,	22,	H. Nelson, witness fees case, State vs. Johnson	95 68	
				$99 53

1882.				
Jan.	4,	D. L. Kiehle, travel, postage and telegrams..	$33 60	
	16,	Pioneer Press Co., Daily and Sunday ed., 1882	14 00	
	26,	D. L. Kiehle, express charges, &c..........	2 84	
Feb.	6,	D. L. Kiehle, postage, stamps, cards and travel	51 00	
	28,	D. L. Kiehle, stamps, travel, &c............	25 90	
Mar.	31,	D. L. Kiehle, brush, stamps, telegrams, travel	33 90	
May	2,	D. L. Kiehle, postage and expressage, April..	47 08	
	16,	Ed. Hammon, blocks for shelving...........	2 00	
June	2,	D. L. Kiehle, postage and traveling expenses..	33 59	
July	3,	D. L. Kiehle, traveling expenses, &c..	36 15	
Aug.	1,	D. L. Kiehle, traveling expenses, &c.........	61 29	
Sept.	1,	D. L. Kiehle, postage, traveling expenses, &c	24 25	
	30,	D. L. Kiehle, stamps and traveling expenses..	33 50	
Nov.	1,	D. L. Kiehle, postage and traveling expenses	26 50	
	25,	D. L. Kiehle, postage, &c.................	28 50	
				$454 10

LIBRARY CONTINGENT.

1881.				
Dec.	30,	W. H. H. Taylor, postage &c., deficiency 1881.	$25 00	
1882.				
Jan.	9,	E. E. Taylor, labor on catalogue, deficiency 1881..................................	12 50	
	12,	M. D. Kenyon, U. S. Postal Guide............	1 50	
	16,	Pioneer Press Co., daily and Sunday ed. 1882.	14 00	
	18,	Daily Globe, daily to Jan. 1, '83........	7 15	
Feb.	8,	West Publishing Co., N. W. Reporter, 1 year deficiency, 1881.......................... ..	5 00	
	28,	W. H. H. Taylor exchange etc., paid in 1881. deficiency 1881............................	79 44	
	28,	W. H. H. Taylor. express charges &c.........	28 63	
M'ch.	9,	W. H. H. Taylor, freight &c., deficiency 1881.	8 53	
M'ch.	22,	W. H. H. Taylor, freight on books &c., deficiency 1881.......................... ...	5 50	
	27,	W. H. H. Taylor, express charges &c., on books..................................	15 00	
April	18,	W. H. H. Taylor, postage and express charges	20 00	
May	23,	W. H. H. Taylor, postage and express charges	20 00	
June	6,	R. L. Polk & Co., State directory............	5 00	
	9,	N. W. Stamp Works, stamps........... ...	9 00	
July	3,	John Mathies, blinds for library.............	7 20	
Aug.	18,	West Publishing Co., Reporter one year.....	10 00	
	24,	W. H. H. Taylor, express charges...........	15 00	
Sept.	4,	W. H. H. Taylor, express charges &c........	15 00	
	5,	Prince & Shandrew, insurance on books......	75 00	
	30,	R. L. Polk & Co., city directory.............	4 00	
Oct.	5,	N. W. Telephone Ex. Co., rent instruments Sept..................................	8 33	
	20,	W. H. H. Taylor, postage stamps............	20 00	
Nov.	13,	W. H. H. Taylor, express charges and postage	15 00	
				$425 78

INSURANCE COMMISSIONER'S CONTINGENT.

1881.				
Dec.	30,	Charles Shandrew, postage	$33 27	
1882.				
Jan	16,	Pioneer Press Co., daily and Sunday Ed. 1882.	14 00	
	18,	Daily Globe, daily to January 1, 1883	8 05	
Feb.	6,	Charles Shandrew, postage stamps	50 00	
March	6.	Charles Shandrew, postage stamps	40 00	
May	31,	Charles E Chapel, washing towels	5 00	
May	31,	Charles Shandrew, stamps and postage	35 00	
June	27,	Charles Shandrew, postage stamps	15 00	
July	28,	Charles Shandrew, postage stamps	30 00	
Sept.	30,	R. L. Polk & Co., city directory	4 00	
Oct.	27,	Charles Shandrew, postage	45 00	
				$27 932

RAILROAD COMMISSIONER'S CONTINGENT.

1882.				
Jan.	4.	William R. Marshall, map and postage	$20 00	
Jan.	16,	Pioneer Press Co., daily and Sunday ed., 1882.	14 00	
Jan.	18,	Daily Globe, Daily Globe to Jan. 1, 1883	8 40	
Feb.	11,	J. H. Baker, Railway Age, 1 year, to Jan. 12, 1883	4 10	
Mch	21,	Myers & Finch, repairing clock	2 00	
Apl.	18,	J. H. Baker, postage and express charges	16 00	
July	6,	St. Paul Book and Stationery Co, R. R. book	2 50	
Aug.	18,	J. H. Baker, postage	5 00	
Sept.	30,	R. L. Polk & Co., city directory	4 00	
Oct.	6,	Charles E. Chapel, postage stamps	10 00	
Nov.	17,	J. H. Baker, postage stamps	10 00	
				$96 00

COMMISSIONER OF STATISTICS CONTINGENT.

1882.				
Jan.	6,	F. S. Christensen, postage and expressage	$17 00	
Jan.	9,	A. W. Petren, work on statistics	8 00	
April	5,	A. W. Petren, postage	10 00	
May	10,	Victor Hjortsberg, compiling statistics	50 00	
May	19,	A. W. Petren, postage stamps	10 00	
July	20,	F. S. Christensen, express charges, etc.	15 00	
July	21,	Victor Hjortsberg, compiling statistics	25 00	
Sept.	5,	A. W. Petren, labor on statistics	35 00	
Sept.	30,	Victor Hjortsberg, labor on statistics	15 00	
				$185 00

PUBLIC EXAMINER'S CONTINGENT.

1881.				
Dec.	31,	H. M. Knox, clerk hire, office desk, chair, &c.	213 11	
1882.				
Jan.	31,	Henry M. Knox, postage stamps, cards, &c.	36 69	
	31,	H. M. Knox, clerk hire, hotel bills, &c	1 9 28	
March	1,	H. M. Knox, clerk hire, hotel bills, &c.	109 18	
April	3,	H. M. Knox, clerk hire, hotel bills, &c.	128 88	
	29,	H. M Knox, clerk hire, railroad fare, &c.	96 88	
May	31,	H. M. Knox, clerk hire, railroad and hotel fare	159 98	
July	1.	Henry M. Knox, clerk hire, postage, &c.	86 34	
	31,	Henry M Knox, clerk hire, July	83 33	
Sept.	1,	H. M. Knox, clerk hire and express charges	124 93	
Oct.	2,	H. M. Knox, clerk hire and express charges	113 08	
	31,	H. M. Knox, clerk hire and express charge	159 43	
Nov.	28,	H. M. Knox, clerk hire, hotel and R. R fare, &c.	103 38	
	28,	H. M. Knox, overdraft in 1881	01	
				$1,544 50

SALARIES OF JUDGES.

James Gilfillan, Chief Justice, eleven months ending Oct. 31, 1882	$3,666 67
John M. Berry, Associate Justice, ten months ending Sept. 30, 1882	3,333 30
D. A. Dickinson, Associate Justice, eleven months ending Oct. 31, 1882	3,666 67
Wm. Mitchell, Associate Justice, eleven months ending Oct. 31, 1882	3,666 67
C. E. Vanderberg, Associate Justice, eight months and nineteen days ending Sept. 30, 1882	2,877 78
Greenleaf Clark, Associate Justice, three months and eleven days, ending Jan 11, 1882	1,122 22
F. M. Crosby, Judge, First district eleven months ending Oct. 31, 1882	3,208 32
Wm. M. McClure, Judge, First district, eleven and three-tenths months ending Oct. 31, 1882	3,295 74
Wm. Wilkin, Judge, Second district, thirteen months ending Sept. 30, 1882	3,791 66
H. R. Brill, Judge, Second district, eleven months ending Oct. 31, 1882	3,208 32
O. Simons, Judge, Second district, eleven months ending Oct. 31. 1882	3,208 32
C. M. Start, Judge, Third district, eleven months ending Oct. 31, 1882	3,208 32
C. E. Vanderberg, Judge, Fourth district, three and eleven-thirtieths months ending Jan. 11, 1882	981 95
A. H. Young, Judge, Fourth district, eleven months ending Oct. 31, 1882	3,208 33
Wm. Lochren, Judge, Fourth district, ten and ten-thirtieths months ending Sept. 30, 1882	3,013 88
Thos. S. Buckham, Judge, Fifth district, sixteen months ending Oct. 31, 1882	4,666 65
M. J. Severance, Judge, Sixth district, eleven months ending Oct. 31, 1882	3,208 32
Jas. M. McKelvy, Judge, Seventh district, twelve months ending Sept 3, 1882	3,500 00
J. L. McDonald, Judge, Eighth district, eleven months ending Oct. 31, 1882	3,208 32
E. St. Julien Cox, Judge, Ninth district, salary to March 22, 1882	1,079 16
H. D. Baldwin, Judge, Ninth district, salary to Nov. 30, 1882	2,265 23
J. Q. Farmer, Judge, Tenth district, eleven months ending Nov. 1, 1882	3,208 32
O. P. Stearns, Judge, Eleventh district, eleven months ending Oct. 31, 1882	3,208 36
J. H. Brown, Judge, Twelfth district, twelve months ending Aug. 31, 1882	3,500 00
	$73,302 51

SUPREME COURT CONTINGENT.

1882.				
Jan.	9,	Chas. E. Chapel, washing towels	$5 00	
	12,	M. D. Kenyon, U. S. Postal Guide one year	1 50	
	16,	Pioneer Press Co., daily and Sunday ed., 1882	14 00	
	17,	Sam. H. Nichols, copying opinions, &c	107 80	
	18,	W. A. Nichols. expenses to Stillwater, reading calendar	15 00	
	18,	Daily Globe, daily to January 1, 1883	14 35	
	25,	Chas. E. Chapel, postage stamps and cards	40 00	
March	9,	W. A. Nichols, postage stamps	18 00	
	11,	J W. Cunningham, printing postal cards	1 50	
April	11,	N. W. Tel Ex. Co., rent for March, State Dep'ts	8 33	
	18,	W. A. Nichols, postage stamps	6 00	
May	1,	W. A. Nichols, postage stamps	16 00	
June	3,	W. A. Nichols, postage stamps	15 00	
	26,	Sam. H. Nichols, copying opinions, &c	52 30	
July	26,	Chas. E. Chapel, postage stamps, &c	18 00	
Sept.	30,	R. L. Polk & Co., city directory	4 00	
Oct.	19,	Chas. E. Chapel, postage stamps	7 82	
		Supreme Court contingent of 1881 overdrawn	155 40	
				$500 00

PRINTING, ADVERTISING AND BINDING.

1881.			
Dec.	28,	J. J. Green, advertising land sale Le Sueur county, Dec.	5 25
	28,	J. J. Green, advertising land sale, Le Sueur county, Dec.	5 25
	29,	J. K. Moore, on account, printing 3d class...	3,000 00
1882.			
Jan.	9,	Daily Globe, advertising proclamation by Governor, constitutional amendment	45 00
	9,	Evening Journal, advertising proclamation, constitutional amendment	58 50
	13,	David Ramaley, measuring work completed, &c	66 00
	14,	St. Paul Dispatch Co., advertising Governor's proclamation	64 50
	19,	Pioneer Press Co., printing Treasurer's report newspaper	542 25
	20,	St. Paul Dispatch Co., advertising Treasurer's report newspaper	550 50
	21,	Daily Globe, advertising Treasurer's report newspapers	542 25
	26,	Tuesley & Rothpletz, advertising land sale Otter Tail county	2 25
Feb.	9,	Henry Hinds advertising land sale Scott county, Oct. 1881	4 34
	11,	Minneapolis Tribune Co., adv. Governor's proclamation constitutional amendment...	60 00
	20,	Joseph Burger, labels &c., arsenal	6 00
	20,	Kelley Bros., advertising forfeited school lands, Olmsted county	6 75
	20,	Kelley Bros., adv. land sale, Olmsted county.	5 25
	28,	L. Harrison, on account, 5th class contract....	2,000 00
Mar.	3,	Pioneer Press Co., copies reports, &c., for Treasurer	23 25
	3,	Pioneer Press Co., advertising amendment constitution	58 50
Apr.	13,	J. W. Cunningham, on acc't, 3d class work..	1,000 00
	20,	Pioneer Press Co., record book supreme court	26 00
May	9,	Luther Osborn, adv. land sale, Clay county...	5 25
	9,	A. J. Underwood. advertising land sale, Otter Tail county	5 25
	12,	F. Puhler, advertising land sale, Norman county, May, 1882	5 00
	16,	A. B. Donaldson, advertising land sale, Douglas county	3 00
	16,	Frank D. Pierce, advertising land sale, Marshall county	5 25
	16,	Joseph Gilpin, advertising land sale, Douglas county	5 25
	18,	J. K. Moor, on account, 3d class, 1879, $407.31, 1881, $391.95	799 26
	23,	L. Harrison, on account, 4th and 5th classes..	1,000 00
	23,	N. W. Winchell, freight and charges on maps, &c	12 53
	23,	F. Von Baumbach, maps and plats for geological reports	686 00
	26,	N. W. Scott, adv. land sale, Pope county.....	5 25
	29,	J. W. Shuts, advertising land sale, Big Stone county	3 93
	29,	Frank A. Day, adv. land sale, Martin county.	5 25
June	1,	W. G. Mitchell, adv. land sale, Kittson county	6 00
	1,	K. J. Kinney, adv. land sale, Pope county....	2 89

June	1,	Morris Tribune, adv. land sale, Stevens county	$3 68
	2,	Hess A. Tuttle, advertising land sale Big Stone county	2 62
	2,	P Clare, adv. land sale, Otter Tail county....	5 25
	3,	Burt W. Day, adv. land sale, Jackson Co....	5 25
	3,	P. Clare, advertising proposals for printing...	15 00
	3,	Minneapolis Tribune, dav. proposals for printing	18 75
	3,	C. H. Davidson, adv. proposals for printing...	18 75
	5,	Red Wing Printing Co., advertising proposals for printing	16 73
	7,	P. J. Giesen, record books and binding laws...	239 50
	7,	Frederick Driscoll, adv. proposals for printing	22 05
	10,	Henry A. Castle, adv. proposals for printing land sale and treasurer's balances	43 47
	13,	J. W. Cunningham, account third class......	1,000 00
	14,	W. R. Dunn, advertising land sale Polk Co...	3 94
	30,	D. Ramaley, measuring contract work.......	26 00
July	20,	J. W. Cunningham, account third class... ..	500 00
	20,	Pioneer Press Co., R. R. record and binding books state land office	30 00
	20,	Pioneer Press Co., letter heads for Ins. dep'mt	13 00
	22,	R. C. Mitchell, account advertising land sale and stumpage sale	25 50
Aug	2,	Pioneer Press Co., printing military commissions Adjutant General	28 00
	14,	Minneapolis Tribune Co., adv. for glass, capitol	3 75
	15,	Evening Journal, advertising for capitol work	9 38
	24,	Pioneer Press Co., blanks for state treasurer..	4 75
	26,	Evening Journal, adv. proposals for stationery	65 58
Sept.	2,	R. C. Mitchell, adv. proposals for stationery..	41 25
	16,	Pioneer Press Co., account advertising land sale and warrant book	54 50
	26,	Henry A. Castle, adv. proposals for stationery.	35 63
	26,	St. Paul Dispatch, advertising for bids on capitol work	5 63
	26,	St. Paul Dispatch, advertising for coal and treasurer's statement	6 75
	30,	O. G. Miller. pr'nt'g impeachment court journal	605 43
Oct.	3,	O. G. Miller, printing circulars land comm'snr	2 00
	4,	J. W. Cunningham, account third class work.	500 00
	5,	D. Ramaley, measuring work ..	45 00
	7,	J. K. Moore, account, balance contract work.	787 26
	9,	O. G. Miller, binding journals of impeachment court	742 50
	13,	Daily Globe, advertisement for contract on capitol work	13 80
	13,	Daily Globe, advertisement of land sale	11 25
	16,	A. DeLocy Wood, advertisement of land sale, Grant county	5 74
	17,	T. W. Woodburn, advertisement of land sale, Kandiyohi county	5 25
	17,	Pioneer Press Co., advertisement for coal.....	9 00
	17,	Pioneer Press Co., advertisment, proposals for stationery	54 00
	17,	Chas. J. Glasier, advertisement of land sale, Wilkin county	5 25
	19,	Chas. T. Gray, advertisement of land sale, Swift county	5 25
	19,	E. P. Huntington, adv. land sale, Le Sueur Co.	5 25
	20,	Renville Co. Union, adv. land sale Renville Co.	5 25
	21,	Northwestern Chronicle, adv. land sale, general.	11 25
	21,	O. G. Miller, printing for impeachment court..	2,638 60

Oct.	26,	Russell & Smith, adv. land sale, Wabasha Co.	$5 25	
	31,	U. M. Thomas, adv. land sale, Dakota Co...	4 63	
Nov.	3,	Joseph Gilpin, adv. land sale, Douglas Co....	4 50	
	3,	Gales & Crosby, adv. land sale, Kandiyohi Co.	5 25	
	3,	Henry Kelsey, adv. land sale, Renville Co....	5 25	
	3,	Luther Osborn, adv. land sale, Clay Co... ...	5 25	
	3,	James Ostrander, adv. land sale, Houston Co.	5 25	
	3,	Ed. H. Folsom, adv. land sale, Chisago Co....	5 25	
	3,	L. P. Hunt, adv land sale, Blue Earth Co....	5 25	
	3,	A. W. McKinstry, adv. land sale, Rice Co.....	5 25	
	3,	J. A. Maxwell, adv. land sale, Murray Co.....	6 00	
	3,	Geo. W McDonald, adv. land sale, Wright Co.	3 93	
	3,	A. W. Shuts, adv. land sale, Todd Co........	5 25	
	3,	A. P. Miller, adv. land sale, Nobles Co.......	5 25	
	3,	Irving Todd, adv. land sale, Dakota Co......	5 25	
	3,	W. B. Mitchell, adv. land sale, Stearns Co....	5 25	
	3,	F. T. Drebert, adv. land sale, Steele Co......	5 25	
	3,	F E. Du Toit, adv. land sale, Carver Co.....	5 25	
	3,	W. B. Mitchell, printing land sale, 500 receipts	6 50	
	3,	A. N. Dare, adv. land sale, Sherburne Co ...	5 25	
	3,	M. Halvorsen, adv. land sale, Freeborn Co...	5 25	
	3,	James Aitkin, adv. land sale, Redwood Co....	5 25	
	3,	A. B. Donaldson, adv. land sale, Douglas Co..	5 25	
	3,	P. Clare, adv. land sale, Otter Tail Co........	5 25	
	4,	Rock Co. Herald, adv land sale, Rock Co.....	5 25	
	4,	Chas. F. Hendryx, adv. land sale, Stearns Co.	5 25	
	4,	W. D. Joubert, adv. land sale, Meeker Co....	5 25	
	4,	Hall & Greenbury, adv. land sale, McLeod Co.	6 00	
	6,	Moorhead Pub. Co., adv. land sale, Clay Co...	7 92	
	10,	Henry Hinds, Jr., adv. land sale, Scott Co....	5 25	
	13,	Simmons & Fuller, adv. land sale, Morrison Co..	5 25	
	13,	Oliver Gibbs, Jr., expenses of Secretary of State distributing reports of Horticultural Society	25 00	
				$18,509 22

Printing, Advertising and Binding Deficiency.

1881.				
Dec.	29,	J. K. Moore, on account third class..........	$1,000 00	
	31,	J. W. Cunningham, on account bal. on first and second class........................	330 85	
1882.				
Jan.	5,	John J. Lemon, bal. part of first class work..	146 64	
	9,	D. Sinclair & Co., on account advertising proposals for stationery..........	26 25	
	20,	J. W. Cunningham, on account work of second class................................	500 00	
Feb.	17,	J. W. Cunningham, on account bal. on first and second class (ex. session legislature)..	710 52	
Mch.	1,	Victor Hjortsberg boxes, &c., shipping laws, &c	85 00	
May	18,	J. K. Moore, on account third class, 1881....	2,700 74	
				$5,500 00

PUBLISHING LAWS IN NEWSPAPERS DEFICIENCY, 1881.

1882.			
Jan.	6,	H. R. Gale, Wilmar, Republican Gazette.....	$24 40
	10,	A. M. Goodrich, Lamberton Commercial.....	24 40
	10,	S. S McKinney, Chatfield Democrat.........	24 40
	12,	Henry Hinds, Shakopee Argus	24 40
	13,	Wm. J. Whipple, Winona Herald...........	24 40
	14,	W. L. Niemann, Sauk Rapids Sentinel	24 40
	16,	P. P. Wall, Preston Republican.............	24 40
	18,	C. C Whiting, Lyon Co. News........... .	24 40
	19,	Louis Rogers, New Ulm Post..............	24 40

Feb. 6,	Northwestern Newspaper Union—			
	Southwest Minnesotian	24 40	48 80	
	Brown's Valley Reporter	24 40		
9,	Northwestern Newspaper Union, Le Sueur Sentinel		24 40	
10,	Geo. P. Garred, Red River Free Press		24 40	
11,	L. P. Hunt, Lanesboro Journal		24 40	
11,	Northwestern Newspaper Union		48 80	
13,	Dow B. McDonald & Son, Melrose Record		24 40	
14,	Frank A. Day, Fairmont Sentinel		24 40	
21,	Pioneer Press Co., Litchfield News-Ledger		24 40	
25,	Sam E. Adams, Wright Co. Times		24 40	
				$488 00

PRINTING PAPER.

1882.			
Jan. 3,	Averill, Russell & Carpenter, paper	$2,181 19	
Mar. 14,	Averill, Russell & Carpenter, paper	1,034 90	
June 16,	Averill, Russell & Carpenter, paper	607 50	
July 15,	Averill, Russell & Carpenter, paper	259 14	
Sept. 11,	Averill, Russell & Carpenter, paper	33 00	
Oct. 12,	Averill, Russell & Carpenter, paper	36 00	
			$4,151 73

PRINTING PAPER DEFICIENCY.

1882.		
Jan. 3,	Averill, Russell & Carpenter, printing paper.	$308 15

STATIONERY.

1882.			
Mar. 2,	St. Paul Book and Stationery Co., stationery.	$161 91	
April 1,	St. Paul Book and Stationery Co., stationery.	187 49	
June 14,	G. F. Morisse, 50 gross amalgam pens	100 00	
June 23,	St. Paul Book and Stationery Co., stationery.	155 83	
Aug. 5,	T. S. White & Co., letter press Attorney General's office	25 00	
24,	St. Paul Book and Stationery Co., stationery.	93 13	
Oct. 3,	St. Paul Book and Stationery Co., stationery.	99 51	
Nov. 1,	St. Paul Book and Stationery Co., stationery.	68 35	
			$891 22

STATIONERY DEFICIENCY.

1881.			
Dec. 31,	St. Paul Book and Stationery Co., stationery	$686 91	
1882.			
Mar. 23,	T. S. White & Co., stationery samples	10 50	
			$697 41

PUBLISHING GENERAL LAWS, EXTRA SESSION 1881.

Jan. 5,	North Western Union:	
	Todd Co. Argus	$44 40
	Hutchinson Leader	44 40
	Lincoln County Journal	44 40
	Perham Journal	44 40
	Fisher Bulletin	44 40
	Northwestern Review	44 40
	Lake City Review	44 40
	Sauk Center Tribune	44 40
	Wright County Times	44 40
9,	H. P. Hall, 100 suppliments to Secy. State	5 00
11,	J. B. Wakefield, Bee, Blue Earth City	44 40
12,	Henry Hinds, Shakopee Argus	44 40
16,	Pioneer Press Co. voucher N. W. Chronicle	44 40
18,	H. P. Hall, voucher Bird Island Blizzard	44 40

Jan.	19,	North Western Newspaper Union account Jackson Republican	44 40	
	21,	North Western Newspaper Union voucher Mower County Mercury	44 40	
				$671 00

PREPARING AND PUBLISHING TAX LAWS.

1882.			
Jan.	7,	O. P. Whitcomb, editing and publishing tax laws	$1,000 00

LEGISLATIVE MANUAL.

1882.			
June	30,	Victor Hjortsberg, compilation for Manual, 1883	$75 00
Aug.	4,	A. E. Mellgren, wood cuts for Manual, 1883	160 00
			$235 00

LAW LIBRARY.

1882.				
Jan.	21,	W. H. H. Taylor, Law Journals	$21 60	
	23,	W. H. H. Taylor. books	15 00	
Feb.	8,	West Publishing Co., books	82 75	
	9,	W. H. H. Taylor, books	2,953 50	
	28,	Frederick Allis, books	25 60	
Mar.	1,	W. H. H. Taylor, books	95 00	
	3,	W. H. H. Taylor, books	5 00	
	6,	W. H. H. Taylor, books	12 00	
	8,	W. H. H. Taylor, books	5 00	
	21,	W H. H. Taylor, books	25 00	
	24,	W. H. H. Taylor, books	6 00	
May	23,	W. H. H. Taylor, books	7 25	
June	21,	W. H. H. Taylor, books	20 50	
Aug.	18,	West Publishing Co., books	107 75	
Sept.	12,	W. H. H. Taylor, books	100 00	
	12,	Frederick Allis, books	40 00	
	27,	J. R. Casselberry, books	6 00	
Oct.	2,	W. H. H. Taylor, books	12 00	
	2,	R Hall, books	6 50	
	3,	West Publishing Co., books	72 25	
	5,	West Publishing Co., books	5 00	
				$3,623 70

SUPREME COURT REPORTS.

1882.				
Jan.	4,	George P. Young, 200 copies Vol. 27, Minnesota Reports	$1,200 00	
Oct.	6,	West Publishing Co., 200 copies Vol. 28, Minnesota Reports	400 00	
				$1,600 00

INDEXING LAWS, EXTRA SESSION.

1882.				
Feb.	1,	Fred Von Baumbach, indexing laws, extra session, 1881	$200 00	
				$200 00

INTEREST ON RAILROAD ADJUSTMENT BONDS.

1882.				
June	21,	Chas. Kittelson, State Treasurer, interest due July 1, 1882, on 2,930 bonds	$65,925 00	
Oct.	20,	Chas. Kittelson, redemption of coupons No. 1, on bonds held by school and university funds	22,161 45	
				$88,086 45

INSANE SUPPORT, FIRST HOSPITAL.

1882.			
Jan. 30,	Wm. Schimmel, Treasurer, balance expenses Dec. 1881	$7,355 24	
Feb. 15,	Wm. Schimmel, Treasurer, expenses for Jan. 1882	11,344 42	
Mar. 9,	Wm. Schimmel, Treasurer, expenses for Feb.	14,497 45	
April 8,	Wm. Schimmel, Treasurer, expenses for Mar.	8,030 35	
May 5,	Wm. Schimmel, Treasurer, expenses for April	6,675 84	
June 7,	Wm. Schimmel, Treasurer, expenses for May.	8,950 81	
July 12,	Wm. Schimmel, Treasurer, expenses for June.	7,222 66	
Aug. 12,	Wm. Schimmel, Treasurer, expenses for July.	7,221 81	
Sept. 18,	Wm. Schimmel, Treasurer, expenses for Aug.	10,007 96	
Oct. 7,	Wm. Schimmel, Treasurer, expenses for Sept.	7,592 16	
Nov. 13,	Wm. Schimmel, Treasurer, expenses for Oct.	9,564 43	
			$98,463 13

INSANE SUPPORT, SECOND HOSPITAL.

1882.			
Jan. 10,	Wm. Schimmel, Treasurer, expenses for December, 1881	$3,408 81	
Feb. 6,	Wm. Schimmel, Treasurer, expenses for January, 1882	4,849 24	
Mar. 10,	Wm. Schimmel, Treasurer, expenses for Feb.	4,740 11	
Apr. 5,	Wm. Schimmel, Treasurer, expenses for Mar.	4,378 08	
May 4,	Wm. Schimmel, Treasurer, expenses for Apr.	3,243 49	
June 5,	Wm. Schimmel, Treasurer, expenses for May.	3,407 36	
July 12,	Wm. Schimmel, Treasurer. expenses for June.	3,548 22	
Aug. 5,	Wm. Sclimmel, Treasurer, expenses for July.	3,257 92	
Sept. 5,	Wm. Schimmel, Treasuror, expenses for Aug.	3,680 55	
Oct. 3,	Wm. Schimmel, Treasurer, expenses for Sept.	3,263 13	
Nov. 4,	Wm. Schimmel, Treasurer, expenses for Oct.	4,688 27	
			$42,465 18

DEAF, DUMB, BLIND AND IMBECILE SUPPORT.

1882.			
Jan. 18,	H. Wilson, Treasurer, expenses for Dec., 1881.	$5,825 82	
Feb. 13,	H. Wilson, Treasurer, expenses for Jan., 1882.	5,401 72	
Mar. 25,	H. Wilson, Treasurer, expenses for Feb.	4,893 45	
Apr. 22,	H. Wilson, Treasurer, expenses for March	4,352 23	
May 17,	H. Wilson, Treasurer, expenses for April	4,122 82	
June 12,	H. Wilson, Treasurer, expenses for May	4,312 55	
July 14,	H. Wilson, Treasurer, expenses for June	2,957 69	
Aug. 14,	H. Wilson, Treasurer, expenses for July	2,134 31	
Sept. 22,	H. Wilson, Treasurer, expenses for Aug	2,207 52	
Oct. 13,	H. Wilson, Treasurer, expenses for Sept	4,691 25	
Nov. 13,	H. Wilson, Treasurer, expenses for Oct	4,174 79	
			$45,074 15

PRISON CURRENT EXPENSES.

1882.			
Jan. 7,	J. A. Reed, Warden, expenses for Dec., 1881	$6,290 57	
Feb. 9,	J. A. Reed, Warden, expenses for Jan., 1882	6,127 13	
Mar. 6,	J. A Reed, Warden, expenses for Feb.	4,159 38	
Apr. 10,	J. A. Keed, Warden, expenses for March	4,574 93	
May 4,	J. A. Reed, Warden, expenses for April	4,852 94	
June 5,	J. A. Reed, Warden, expenses for May	4,464 23	
July 11,	J. A. Reed, Warden, expenses for June	4,225 97	
Aug. 5,	J. A. Reed, Warden, expenses for July	4,597 15	
Sept. 5,	J. A. Reed, Warden, expenses for Aug	3,545 20	
Oct. 4,	J. A. Reed, Warden, expenses for Sept	4,363 80	
Nov. 6,	J. A. Reed, Warden, expenses for Oct	4,157 07	
			$51,358 37

REFORM SCHOOL SUPPORT.

1882.				
Jan.	11,	Second Nat. Bank, St. Paul, expenses, December, 1881	$3,952 14	
Feb.	6,	Second Nat. Bank, St. Paul, expenses, January, 1882	4,584 92	
March	8,	Second Nat. Bank, St. Paul, expenses, February, 1882	4,047 32	
April	11,	Second Nat. Bank, St. Paul, expenses, March, 1882	3,813 85	
May	5,	Second Nat. Bank, St. Paul, expenses, April	3,415 11	
June	7,	Second Nat. Bank, St. Paul, expenses, May	3,393 36	
July	8,	Second Nat. Bank, St. Paul, expenses, June	3,598 60	
Aug.	7,	Second Nat. Bank, St. Paul, expenses, July	3,413 24	
Sept.	5,	Second Nat. Bank, St. Paul, expenses, August	1,781 46	
				$32,000 00

REFORM SCHOOL CISTERN.

1882.			
July	19,	Second Nat. Bank, St. Paul, order of board	$2,000 00

MANKATO NORMAL SCHOOL, SUPPORT.

1882.				
Jan.	11,	J. H. Ray, Treasurer, expenses December, 1881	$2,183 52	
Feb.	2,	J. H. Ray, Treasurer, expenses January, 1882	1,636 06	
Mar.	6,	J. H. Ray, Treasurer, expenses February	1,204 16	
April	5,	J. H. Ray, Treasurer, expenses March	2,114 00	
May	5,	J. H. Ray, Treasurer, expenses April	1,444 91	
Oct.	4,	J. H. Ray, Treasurer, expenses September	1,200 00	
Nov.	2,	J. H. Ray, Treasurer, expenses October	1,240 73	
				$11,023 38

ST. CLOUD NORMAL SCHOOL, SUPPORT.

1882.				
Jan.	11,	W. B. Mitchell, Treasurer, expenses December, 1881. and 5 per cent. added	$3,192 46	
Feb.	6,	W. B. Mitchell, Treasurer, expenses Jan. 1882	1,795 48	
Mar.	6,	W. B. Mitchell, Treasurer, expenses February, and 5 per cent. added	1,311 45	
April	4,	W. B. Mitchell, Treasurer, expenses March, and 5 per cent. added	1,425 25	
May	4,	W. B. Mitchell, Treasuaer, expenses April	1,357 20	
Sept.	9,	W. B. Mitchell, Treasurer, expenses August	801 30	
Oct.	3,	W. B. Mitchell, Treasurer, expenses Sept.	976 48	
Nov.	9,	W. B. Mitchell, Treasurer, expenses October	1,140 38	
				$12,000 00

WINONA NORMAL SCHOOL, SUPPORT.

1882.				
Jan.	7,	Thos. Simpson, Treas., expenses Dec., 1881	$2,714 92	
Feb.	6,	Thos. Simpson, Treas., expenses Jan., 1882	2,674 39	
Mar.	6,	Thos. Simpson, Treas., expenses February	1,781 85	
April	4,	Thos. Simpson, Treas., expenses March	2,074 72	
May	2,	Thos. Simpson, Treas., expenses April	1,640 94	
June	3,	Thos. Simpson, Treas., expenses May	1,524 79	
Oct.	7,	Thos. Simpson, Treas., expenses June, July and August	1,420 17	
	7,	Thos Simpson, Treas., expenses September	168 22	
				$14,000 00

INSANE BUILDING, FIRST HOSPITAL—BUILDING.

1881.			
Dec. 28,	Wm. Schimmel, Treasurer, order of board...	$10,000 00	
1882.			
June 29,	Wm. Schimmel, Treasurer, rebuilding, order of board...	20,000 00	
Sept. 14,	Wm. Schimmel, Treasurer, rebuilding, order of board...	20,000 00	
Nov. 28,	Wm. Schimmel, Treasurer, rebuilding, order of board...	2,000 00	
			$52,000 00

INSANE BUILDING, FIRST HOSPITAL—BASEMENT AND CENTRE BUILDING.

1882			
March 9,	Wm. Schimmel, Treasurer, order of board....	$5,000 00	
28,	Wm. Schimmel, Treasurer, order of board....	2,000 00	
			$7,000 00

INSANE BUILDING, FIRST HOSPITAL—HEATING.

1882			
March 9,	Wm. Schimmel, Treasurer, order of board....	$5,000 00	
Nov. 28,	Wm. Schimmel, Treasurer, order of board....	2,000 00	
			$7,000 00

INSANE BUILDING, FIRST HOSPITAL—FURNISHING.

1882			
March 9,	Wm. Schimmel, Treasurer, order of board ...	$5,000 00	
Nov. 28,	Wm. Schimmel, Treasurer, order of board....	2,000 00	
			$7,000 00

INSANE BUILDING, FIRST HOSPITAL—REPAIRS.

1882.			
Mar. 9,	Wm. Schimmel, Treasurer, order of board....	$2,000 00	

INSANE BUILDING, SECOND HOSPITAL—BUILDING EAST WING.

1882.			
Feb. 6,	Wm. Schimmel, Treasurer, order of board...	$2,000 00	
July 12,	Wm. Schimmel, Treasurer, order of board...	10.880 10	
Aug. 5,	Wm. Schimmel, Treasurer, order of board...	8,605 35	
Sept. 16,	Wm. Schimmel, Treasurer, order of board...	7.102 80	
Oct. 7,	Wm. Schimmel, Treasurer, order of board...	6,865 65	
Nov. 17,	Wm. Schimmel, Treasurer, order of board...	4,383 00	
			$39,836 90

INSANE BUILDING, SECOND HOSPITAL—EAST WING EXTENSION.

1882			
May 22,	Wm. Schimmel, Treasurer, order of board ...	$6,312 15	
June 9,	Wm. Schimmel, Treasurer, order of board....	5,678 55	
Sept. 16,	Wm. Schimmel, Treasurer, order of board....	1,219 00	
			$13,209 70

INSANE BUILDING, SECOND HOSPITAL—KITCHEN.

1882			
Sept. 16,	Wm. Schimmel, Treasurer, order of board....	$1,500 00	
Nov. 4.	Wm. Schimmel, Treasurer, order of board....	1,500 00	
			$3,000 00

INSANE BUILDING, SECOND HOSPITAL—HEATING EAST WING.

1882.			
June 9,	Wm. Schimmel, Treasurer, order of Board...	$1,000 00	
Nov. 4,	Wm. Schimmel, Treasurer, order of Board...	2,500 00	
			$3,500 00

INSANE BUILDING, SECOND HOSPITAL—FURNISHING EAST WING.

1882.				
June	9,	Wm. Schimmel, Treasurer, order of Board...	$1,000 00	
				$1,000 00

INSANE BUILDING, SECOND HOSPITAL—WATER SUPPLY.

1881.				
Dec.	28,	Wm. Schimmel, Treasurer, order of Board...	$5,000 00	
				$5,000 00

Idiots' and Imbeciles' Building.

1882.				
April	5,	H. Wilson, order of board....................	$15,195 49	
				$15,195 49

Prison Wall, Grading, etc.

1882.				
Jan.	2,	J. A. Reed, warden, order of board.........	$457 00	
	3,	Seymour, Sabin & Co., order of board.......	15,290 85	
	5,	S. C. Cutler, order of board.................	2,077 91	
	5,	S. C. Cutler, order of board.....	500 00	
Feb.	4,	Jos. Kelso, order of board	133 57	
M'rch	2,	J. H. Woolsey, order of board............ ...	19 91	
	11,	Seymour, Sabin & Co., order of board.	52 66	
Apr.	3,	J. A. Reed, warden, order of board..........	55 39	
May	16,	P. H. Muller, order of board....	56 00	
	25,	Pioneer Press Co., order of board............	10 50	
June	2,	Minneapolis Tribune Co., order of board....	9 70	
July	19,	Lumberman Printing Co., order of board.....	7 50	
Oct.	10,	Seymour, Sabin & Co., order of board........	890 02	
Nov.	11,	Seymour, Sabin & Co., order of board........	10,000 00	
	14,	J. A. Reed, order of board.................	48 00	
				$29,609 01

PRISON WATER WORKS EXTENSION.

1882				
Oct.	10,	Seymour, Sabin & Co., order of board........	$520 00	
				$520 00

WATER SUPPLY FOR UNIVERSITY.

1882				
Jan.	5,	Richard Chute, Treasurer, order of board.....	$1,000 00	
				$1,000 00

REBUILDING CAPITOL.

1882.			
Jan.	5,	A. M. Radcliff, making plans and estimates..	$100 00
	6,	Wiley & Carlson, labor and material.........	175 29
Feb.	1,	Joseph Commerford, labor on basement......	18 00
	3,	J. S. Burris, brick on account of contract.....	3,000 00
	14,	St. Paul Foundry and Manufacturing Co., beams, lintels and columns..............	966 60
	18,	P. F. Flynn, on account of sewer contract....	510 00
Mar.	17,	Frontenac Stone Co., on account contract.....	1,000 00
	18,	P. F. Flynn, on account sewer contract......	629 85
	24,	Wilson & Rogers, sundries for capitol........	31 26
	24,	J. C. Johnston, plumbing and materials......	7 50
Apr.	8,	Frontenac Stone Co., on account contract.....	1,500 00
	21,	Breen & Young, granite curbing for sidewalk.	123 82
	22,	J. S. Burris, on account contract....	2,500 00
May	2,	J. W. Milner, labor and material............	682 33
	3,	P. F. Flynn, extra work on sewer.............	262 15
	6,	J. S. Burris, on account contract.	3,300 00

May	9,	Frontenac Stone Co., on account contract....	$900 00	
	16,	Isaac W. Milner, labor and material.........	390 77	
	22,	J. S. Burris, on account contract.............	5,000 00	
June	1,	Isaac W. Milner, labor and material.........	526 15	
	1,	St. P. M. & M. Ry. Co., Iron for vaults &c...	93 43	
	3,	Frank Morand, boilers....................	1,000 00	
	3,	James S. Burris, on account contract.........	4,000 00	
	3,	Frontenac Stone Co., stone for boiler room and capitol.................................	600 00	
	3,	Wiley and Carlson, on account contract......	2,550 00	
	12,	Wiley and Carlson, labor and material for engine room................	44 12	
July	1,	I. W. Milner, labor and material.............	671 24	
Oct.	14,	L. F. Hubbard, insurance paid on boilers.....	30 00	
Nov.	2,	Drew Brothers, hardware.....................	80 34	
				$30,695 85

FINISHING AND FURNISHING CAPITOL.

1882.			
June	16,	J. S. Burris, on acc't contract for brick work.	$4,000 00
	16,	A. Wanner, fire proof material, acc't contract.	3,000 00
July	3,	J. S. Burris, on acc't contract for brick work..	3,000 00
	10,	Frontenac Stone Co., account contract.......	2,000 00
	15,	J. S. Burris, acc't contract for brick work.....	2,000 00
	19,	I. W. Milner, labor on capitol....	280 93
Aug.	1,	I. W. Milner, labor and material............	552 46
	1,	A. Wanner, acc't contract fire proof roofing...	5,000 00
	1,	L. S. Buffington, services as architect...	2,000 00
	5,	Frontenac Stone Co., acc't contract for stone..	1,500 00
	12,	J. S. Burris, acc't contract for brick work....	4,000 00
	16,	I. W. Milner, labor and material...........	363 70
Sept.	1,	A. Wanner, acc't contract for fire proof mat'l.	2,500 00
	5,	I. W. Milner, labor and material............	741 50
	9,	Frontenac Stone Co., account contract... ...	2,500 00
	9,	J. S. Burris, account contract for brick work..	4,000 00
	14,	A. Wanner, acc't contract for fire proof mat'l.	3,000 00
	16,	I. W. Milner, labor on capitol...............	369 87
	19,	Frederick Hass, copper work on gutters and roof...	5,051 81
	23,	Christian & Hazzard, account contract for plastering..........................	500 00
	23,	Kenny & Hudner, acc't contract for gas fitting.	225 00
	29,	Butman Furnace Co., acc't furnace for boilers	500 00
Oct.	2,	I. W. Milner, labor and material............	615 62
	2,	A. Wanner, acc't contract for fire proof mat'l.	4,500 00
	3,	E. E. Scribner, account contract for roof.....	1,500 00
	6,	Christian & Hazzard, account contract for plastering..........................	800 00
	6,	Frontenac Stone Co., account stone contract..	1,500 00
	9,	Jas. Burris, account contract for Brick work..	3,800 00
	16,	I. W. Milner, labor and material....	287 00
	16,	J. I. Bowers, labor and material.............	955 39
	17,	A. Wanner, acc't contract for fire proof mat'l.	2,500 00
	19,	Kenny & Hudner, acc't contract for gas fitting	250 00
	20,	Butman Furnace Co., furnace, &c......... ...	424 38
	21,	Frontenac Stone Co., account stone contract..	1,000 00
	23,	Christian & Hazzard, account contract for plastering...	500 00
	25,	Wheaton, Reynolds & Co., account contract for mill work..............................	4,000 00
	28,	E. F. Osborne, account contract for steam heating..................................	5,000 00

Nov.	1,	I. W. Milner, labor and material	$888 25	
	1,	J. I. Bowers, labor and material	2,317 17	
	1,	F. T. Lindman, labor and material	638 53	
	2,	J. P. Gribben, lumber	2,242 77	
	9,	J. S. Burris, on account contract for brick work	3,850 00	
	11,	A. Wanner, on account contract for fire-proof material	1,000 00	
	16,	I. W. Milner, on account labor and material	534 40	
	16,	J. I. Bowers, on account labor and material	2,564 92	
	16,	F. T. Lindman, labor and material	299 37	
	17,	Horne & Danz, balance on roofing	615 90	
	17,	Noyes Bros. & Cutler, glass for capitol	3,270 00	
	17,	Christian & Hazzard, on account contract for plastering	500 00	
	17,	Kenney & Hudner, on account contract for gas fitting	225 00	
	20,	Horne & Danz, extra work on roof	100 00	
	21,	Wiley & Carlson, on contract for roof	2,000 00	
	21,	A. Wanner, on account contract for fire-proof material	2,000 00	
	21,	Frank Morand, labor and material for boilers	229 20	
	29,	Wiley & Carlson, on account contract for carpenter work	2,000 00	
				$ 99,993 44

CAPITOL ROOF.

1882.				
July	20,	Wiley & Carlson, account contract	$2,000 00	
Sept.	6,	Wiley & Carlson, account contract	2,850 00	
	22,	Horne & Danz, account contract	1,000 00	
Nov.	9,	J. S. Burris, acccunt contract brick work	1,150 00	
				$7,000 00

BOILER ROOM, &C., CAPITOL.

1882.				
Jan.	2,	Frank Kernan, extra work enlarging tunnel, &c	$300 00	
Oct.	9,	James Burris, labor and material	1,200 00	
				$1,500 00

REPAIRS CAPITOL.

1882.				
Oct.	2,	Geo. R. Morton, tools for engineer		$36 85

FURNISHING OFFICES MARKET HOUSE.

1881.			
Dec.	27,	Charles Shandrew, desk Ins. Com'rs office	$65 00
	31,	Kenny & Hudner, gas fixtures, &c, Ins. Com'rs office	8 77
1882.			
Jan.	3,	E. F. Osborne, bal. on heating apparatus	75 00
	3,	De Coster & Clark, desk for library	65 00
	3,	Geo. R. Morton, sundries heating apparatus	43 84
	5,	D. L. Kiehl, desk, &c., Supt. Pub. Ins	117 65
	5,	Wilson & Rogers, gas fixtures Treas. office	6 85
	6,	Wiley & Carlson, covering document rooms, &c	50 20
	7,	Kenny & Hudner, gas fixtures auditor's office	14 71
	9,	H. P. Rugg, hose for Market House	14 85
	9,	D. L. Kiehl, boxes packing laws	13 50
	14,	Stees Brothers, desk for R. R Com'rs office	63 00
	14,	De Coster & Clark, book case, &c. for R. R. Com'rs office	31 25
	21,	Lichtenauer & Engel, furniture for R. R. Com'rs office	7 65

Feb.	7, Dreis & Mitsch, alcohol, &c. for cleaning office windows	3 30	
	8, Chas. Kittelson, stamps for indorsing trust bonds	8 00	
	15, Wiley & Carlson, labor and material for offices and rooms	73 36	
	21, John Matheis, carpet &c. for R. R. Com'rs office	34 98	
March	8, Warne Bros. & Co., traps, &c., for sewer at Market House	32 00	
	24, De Coster & Clark, repairing lounge and chair, auditor's office	3 75	
	31, E. Hammon, cleaning auditor's office and putting down matting	2 50	
April	4, A. Winter, soap for washing windows	50	
	12, Chas. E. Chapel, paid for cleaning legis. halls	7 75	
June	5, H. D. Horton, letter files for departments	37 90	
	6, A. C. Hawley, desk, &c. for adjt. genl's office	33 25	
	10, H. D. Horton, letter files	5 90	
July	12, J. G. Hinkel, sprinkling streets	20 00	
Aug.	1, Chas. E. Chapel, washing towels, &c., ex. dep.	6 30	
	2, Wiley & Carlson, window screens, &c.	133 60	
	8, T. S. White & Co., letter press, &c., adjutant general's office	31 07	
	5, John G. Hinkel, sprinkling streets, July	20 00	
	21, De Coster & Clark, desk for treasurer's office	18 00	
Sept.	2, Stees Bros., case for R. R. Comr's office	32 66	
	5, M. D. Kenyon, rubber type, &c., audtr's office	13 40	
	5, Charles Kittelson, check protector	20 55	
	6, John G. Hinkel, sprinkling streets	20 00	
	28, John G. Hinkel, sprinkling streets	20 00	
Oct.	3, Myers & Finch, repairing clock, gov's office	1 50	
	3, John G. Hinkel, sprinkling streets	29 25	
			$1,186 79

DEAF, DUMB AND BLIND INSTITUTE—ENLARGING GROUNDS.

1882.			
Jan.	19, H. Wilson, treasurer, order of board	$3,000 00	
April	5, H. Wilson, treasurer, order of board	1,000 00	
			$4,000 00

MANKATO NORMAL SCHOOL GROUND EXTENSION.

1882.			
M'ch	14, J. H. Ray, treasurer, order of board	$1,800 00	
			$1,800 00

ENLARGING ST. CLOUD NORMAL SCHOOL GROUNDS.

1882.			
Sept.	9, W. B. Mitchell, treasurer, order of board	$150 00	
			$150 00

WINONA NORMAL SCHOOL IMPROVING GROUNDS.

1882.			
Jan.	14, Thos. Simpson, treasurer, order of board	$750 00	
M'rch	6, Thos. Simpson, treasurer, order of board	1,000 00	
April	28, Thos. Simpson, treasurer, order of board	1,000 00	
June	17, Thos. Simpson, treasurer, order of board	1,000 00	
Aug.	12, Thos. Simpson, treasurer, order of board	1,000 00	
			$4,750 00

RENT OF ARSENAL.

1882.				
Jan.	7,	Max Eibert, rent quarter ending Dec. 31, '81..	$108 48	
April	4,	Max Eibert, rent quarter ending Mar. 31, '82..	111 00	
July	3,	Max Eibert, rent quarter ending June 30, '82	111 00	
Oct.	4,	Max Eibert, rent quarter ending Sept. 30, '82	111 00	
Oct.	23,	A. C. Hawley, rent for October	37 00	
Nov.	17,	A. C. Hawley, rent for November...........	37 00	
				$515 48

HISTORICAL SOCIETY.

1881.			
Dec.	31,	J. F. Williams, salary and sundries, Dec.....	$139 20
1882.			
Jan.	23,	Jansen, McClurg & Co., books..............	34 00
	31,	J. F. Williams, salary, etc., Jan........... ..	126 91
Feb.	14,	J. F. Williams, books	20 65
	22,	Robert Clarke & Co., books.................	5 00
	27,	Mrs James Swaim, N. Y. Herald, 1867 to 1877.	100 00
	27,	C. L. Woodward, books.......	37 31
	27,	Bangs & Co., books...................	25 75
	28,	J. F. Williams, salary and sundries, Feb.....	134 13
Mar.	1,	J. F. Williams, postage....................	8 00
	1.	Southern Hist. Society, books..............	12 00
	4,	E. & J. B. Young & Co., books..............	21 45
	6,	F. Engel, binding newspapers.............	112 00
	17,	D. G. Francis, books.......................	38 75
	23,	Jordan Bros., books.......................	19 03
	31,	J. F. Williams, salary, etc., March	136 70
Apr.	1,	O. G. Miller, postal cards and printing	12 00
	3,	T. H. Morrell, books	5 40
	8,	Geo. E. Littlefield, books	51 13
	17,	R. C. Wiley, book-case	13 35
	20,	Estes & Lauriat, books	45 00
	29,	J. F. Williams, salary, etc, April.............	137 94
May	1,	J. E. Weed, newspapers	5 00
	8,	Bangs & Bro., books.......................	17 47
	10,	C. L. Woodward, N. Y. Herald.............	20 00
	12,	Joel Munsell's sons, books.................	24 08
	17,	E. & J. B. Young, books....................	5 40
	20.	Thos. O'Mara, freight and cartage..........	9 36
	25,	Little, Brown & Co., books........	6 37
	25,	Sullivan, Bros., & Libbie, books.............	7 62
	31,	J. F. Williams, salary, etc., May............	134 30
June	9,	R. L. Polk & Co., State directory............	5 00
	9,	J. F. Williams, postage	3 43
	12,	David G. Francis, books...............	43 88
	16,	James Jenks, books........................	22 50
	16,	Joseph McDonough, books	5 25
	19,	P. Ringer & Co, binding	9 50
	27,	Chicago Tribune Co., daily, one year.........	14 00
	29,	Prince Society, membership fee.............	4 50
	30,	J. F. Williams, salary and sundries, June....	134 76
July	3,	J. F. Williams, books....	12 65
	7,	Asa K. Butts, books........................	51 50
	8,	Bangs & Co., books........................	15 78
	15,	C. L. Woodward, books....................	65 70
	15,	Moeller & Co., binding books, etc....	11 20
	21,	Joel Munsell's Sons, books.................	5 00
	31,	J. F. Williams, salary and sundries, July....	138 25

Aug.	4,	John Dowlan, one-half cord of wood	$4 25	
	10,	C. N. Caspar, book	5 00	
	15,	John Lovell, books	3 00	
	22,	Winslow L. Knowles, books	4 50	
	23,	David Day, stamps	18 00	
	23,	St. Paul Gas Light Co., gas and rent of meter	4 20	
	26,	Minn. Hist. Co., book	5 00	
	28,	Moeller & Co., binding newspapers	42 00	
	31,	J. F. Williams, salary, etc., August	129 80	
Sept.	1,	O. G. Miller, printing labels	7 00	
	4,	Little, Brown & Co., books	7 50	
	8,	Joel Munsell's Sons, books	14 15	
	9,	Minn. Hist. Co., maps and book	15 00	
	13,	U. S. Express Co., charges	6 50	
	23,	Minn. Hist. Co., map of Rice county	5 00	
	26,	J. F. Williams, seal for society	3 97	
	27,	W. P. Lunt, books	53 94	
	28,	A. L. Bolton, printing	6 00	
	29,	P Ringer, binding books	49 20	
	29,	Elias Child, book	5 25	
	30,	R. L. Polk & Co., city directory	4 00	
	30,	J. F. Williams, salary and sundries, Sept	134 45	
Oct.	3,	Moeller & Co., binding	26 00	
	11,	Estes & Lauriat, books	18 00	
	11,	C. L Woodward, books	64 36	
	28,	J. R. Osgood & Co., books	10 00	
	31,	Moeller & Co., binding books, etc	12 00	
	31,	J. F. Williams, salary, etc., October	136 90	
Nov.	1,	James Anglim & Co., books	31 00	
	2,	O. G. Miller, printing circulars	3 50	
	3,	Joel Munsell's Sons, books	10 36	
	3,	N. P. James, books	6 50	
	9,	Moeller & Co., binding newspapers	117 00	
	10,	B. Westermann & Co., books	8 66	
	10,	Geo D. Morse	63 68	
Nov.	14,	Bangs & Co., books	14 11	
	14,	Harper Bros., magazines	4 05	
	17,	Geo. E. Littlefield, books	39 83	
	21,	Minnesota Hist. Co., Books	10 00	
	23,	Geo. D. Morse, books	10 18	
	27,	Sullivan Bros. & Libbie, books	123 84	
	29,	J. F. Williams, salary and sundries, Nov	141 05	
				$3,391 93

SELLING STATE LANDS.

1881.			
Dec.	28,	F. B. Thompson, attending land sale Crow Wing county	$3 00
	28	H. F. Lashier, attending land sale Todd county	3 00
	29,	J Marston, estimating pine timber	307 45
	30,	F. A. Borer, attending land sale Oct. and Dec. Le Sueur county	6 00
1882.			
Jan.	14,	E. Horton, appraising lands, Pine county three days	9 00
	14,	J. Marston, expenses incurred in regard to cutting pine timber	78 62
	14,	O. P. Whitcomb, expenses incurred in testing sales of lands for taxes	186 41
Feb.	3,	John Ohlsson, attending land sale Grant county	6 00

Mar.	6,	H. H. Crowell, expenses canceling sale, Todd county, S. Dower	$51 00
	21,	H. Champion, clerk, land sale, Wilkin county	6 00
	27,	J. D. Lachance, expenses looking up trespass, Morrison county	1 75
Apr.	3,	A. S. Wimer, looking up trespass, Becker county	37 40
	5,	J. E. Knowlton, scaling trespass, Sec. 36, T 50, R 17	80 00
	7,	John S. Proctor, estimating pine timber	15 00
May	1,	A. H. Wilcox, expenses protecting State lands Becker county	23 75
	16,	T. E. Godfrey, appraising lands, Marshall county ten days	30 00
	16,	George Holly, appraising lands, Marshall county ten days and team nine days	52 50
	22,	M. A. Holther, appraising lands, Kittson county ten days	30 00
	22,	F. W. Wagoner, appraising lands, Kittson county ten days	30 00
	22,	Wm. Thompson, appraising lands, Kittson county ten days	30 00
	22,	Wm. Thompson, appraising lands, Kittson county nine days, team	45 00
	22,	Geo. A. Brackett, ⅛ scale bills, scaling timber cut on State lands, &c	752 85
	25,	O. H. Lucken, appraising lands, Polk county ten days, team ten days	55 00
	26,	K. Knudson, appraising lands, Polk county ten days	30 00
June	6,	H. Eustrom, clerk land sale, Kittson county	3 00
	9,	Edgar Shanks, clerk land sale Martin county	3 00
	21,	Thomas E. Heenan, clerk land sale Stevens county	3 00
	21,	P. J McGuire, clerk land sale, Polk county	3 00
	21,	W. W. Braden, expenses attending land sale, May and June	103 90
	21,	F. W. Burnham, clerk land sale, Otter Tail county	3 00
	21,	W. C. Lincoln, clerk land sale, Otter Tail county	3 00
	29,	P. J. McGuire, appraising lands, Polk Co., 10 days	30 00
	29,	M. A. Wollan, clerk land sale, Pope Co	3 00
	29,	Geo. H. McCrea, clerk land sale, Marshall Co.	3 00
July	11,	C. O. Armistead, scaling timber, Sec. 36, T. 48, R. 16	132 00
	11,	J. H. Spencer, looking after pine timber cutting	44 00
Aug.	8,	Theo. Bordseu, clerk land sale, Douglas Co	3 00
	9,	Geo. A. Brackett, expenses looking up trespass	599 82
	10,	Wm. V. King, clerk land sale, Jackson Co., June, 1881, and May, 1882	6 00
	17,	J. E Knowlton, scaling pine timber	42 00
Sept.	23,	N. Kjeldson, appraising lands, Norman Co., 8 days	24 00
	23,	M. J. Dunlap, appraising lands, Norman Co., 8 days	24 00
	23,	E. T. Salverson, appraising land and team hire, Norman Co	64 00
Oct.,	5,	N. Kjeldson, appraising lands, Norman Co, 5 days	15 00
	5,	M. J. Dunlap, appraising lands Norman Co.,	

		5 days	$15 00	
Oct.	5,	E. T. Salverson, appraising lands Norman Co., 5 days	15 00	
	7,	Campbell & Barnes, team for appraisers, Norman Co., 4 days	20 00	
	7,	E. P. Heath, looking after trespass on State pine lands	24 50	
	11,	A. Running, services at land sale, Norman Co	3 00	
	31,	A. H. Brocklehurst, feed for team used by appraisers, Otter Tail Co	11 30	
	31,	Hunter & Little, team for appraisers, Otter Tail Co	122 50	
Nov.	20,	Chas. E. Chapel, postage	29 00	
				$3,221 75

SELECTING INDEMNITY STATE LANDS.

1882.				
Feb.	20,	Sam. Leavitt, selecting indemnity state lands	$149 95	
Mar.	21,	Sam. Leavitt, selecting indemnity state lands	142 85	
May	22,	Sam. Leavitt, selecting indemnity state lands, St. Cloud district	245 85	
June	28,	Sam. Leavitt, selecting indemnity state lands, St. Cloud district	142 70	
July	25,	Sam. Leavitt, selecting indemnity school lands	212 10	
Aug.	30,	W. B. Mitchell, receiver's fees on selections of indemnity school lands	180 00	
	31,	J. Q. A. Braden, expenses adjusting, St. Cloud district, selections	19 40	
Oct.	3,	Sam. Leavitt, expenses selecting state lands Crookston district	233 18	
	10,	J. H Spencer, selecting indemnity school lands, Taylor's Falls district	194 00	
				$1,520 03

TRAINING SCHOOLS AND INSTITUTES.

1881.				
Dec.	28,	D. L. Kiehle, institute expenses	$100 00	
1882.				
Jan.	26,	D. L. Kiehle, institute expenses	135 00	
Mar.	3,	D. L. Kiehle, institute expenses	500 00	
	31,	D. L. Kiehle, institute expenses	500 00	
April	17,	D. L. Kiehle, institute expenses	1,000 00	
July	5,	D. L. Kiehle, institute expenses	500 00	
Sept.	1,	D. L. Kiehle, institute expenses	300 00	
	22,	D. L. Kiehle, institute expenses	200 00	
				$3,235 00

EXPENDITURES OF INSTITUTES, AS FOLLOWS:

Anoka County	$78 50
Becker	57 19
Benton	61 80
Big Stone	101 53
Blue Earth	92 30
Brown	72 65
Carlton	68 35
Carver	73 00
Chippewa	52 70
Chisago	68 60
Dodge	63 15
Freeborn	84 50

Goodhue	$ 83 60	
Grant	73 15	
Hennepin	60 63	
Houston	73 02	
Jackson	58 15	
Le Sueur	67 60	
Lincoln	94 15	
Lyon	45 55	
McLeod	102 35	
Martin	111 35	
Meeker	87 65	
Murray	85 10	
Nobles	74 12	
Olmsted	74 55	
Otter Tail	69 40	
Pipestone	89 21	
Pope	88 95	
Redwood	57 31	
Renville	86 32	
Rock	118 12	
Stearns	91 15	
Sibley	52 55	
Steele	74 55	
Stevens	91 55	
Todd	54 45	
Wadena	29 10	
Washington	86 90	
Winona	107 11	
Wright	83 25	
St. Paul	73 10	
Miscellaneous	71 37	
		$3,289 63

SELECTING UNIVERSITY LANDS.

1882.				
Jan.	7,	J. Marston, selecting 2,570 acres University land, Duluth district		$321 25

STATE LAND AGENT.

1882.				
Jan.	9,	W. P. Jewett, services 1880	$250 00	
	9,	W. P. Jewett, services 1881	522 00	
June	1,	W. P. Jewett, services 1882	50 00	
				$822 00

FUEL AND LIGHTS.

1882.			
Jan.	5,	St. Paul Water Co., water to July 1, 1882	$71 25
	5,	E. Hammon, oil, shades, &c	1 45
	5,	Geo. R. Morton, repairs on boiler, &c. Market House	20 60
Feb.	14,	St. Paul Foundry and Manufacturing Co., fixing boilers	8 05
	18,	Joseph Burger, fuel for arsenal	2 50
Mar.	2,	Smith & Lewis, coal and wood	1,264 53
	29,	Geo. R. Morton, sundries for engine room	2 43
	31,	S. Swenson, services as fireman ½ month	30 00
Apr.	3,	A. Winter, case matches	8 75
	4,	John Dowlan, one cord slabs	4 00
May	3,	John Dowlan, one cord slabs	4 00
	10,	Smith & Lewis, coal and wood	587 79

June	3,	John Dowlan, one cord slabs	$ 3 50	
	12,	John G. Hinkel, sprinkling streets, market square	12 10	
	14,	Geo. R. Morton, sundries	4 75	
	30,	Smith & Lewis, coal	73 15	
July	3,	Board of Water Commissioners Saint Paul, water six months to January 1, 1883	71 25	
	7,	St. Paul Box Manufactory, ice chest	12 00	
Sept.	1,	A. Winter, matches, brooms, &c	14 70	
Oct.	2,	Northwestern Fuel Co., coal and wood	65 19	
	6,	John Dowlan, one cord slabs	3 50	
Nov.	3,	Northwestern Fuel Co., coal and wood	112 88	
	14,	People's Ice Co., ice for one year ending Nov. 1, 1882	80 00	
				$2,458 87

EXPRESS AND MILEAGE.

Jan.	11,	C. C. Wieland, mileage Oct. settlement, Lake and Cook counties	$10 00	
	18,	Chas. Kittelson, Treasurer, express charges, &c., paid	35 49	
Mar.	31,	Chas. Kittelson, Treasurer, express charges and exchange paid	18 10	
Apr.	4,	Ole Rigg, Jr., mileage, Mar. settlement, Pope county	4 00	
	12,	Dawson & Co., charges paid on M'o 6 per cent. to New York and return	468 98	
	28,	A. Currie, Sr., mileage March settlement, Murray county	2 60	
	29,	Chas. Kittelson, Treasurer, express charges on remittances	12 68	
May	5,	Chas. Kittelson, Treasurer, mileage paid treasurers Le Sueur and Grant counties	5 40	
	24,	Chas. Wieland, mileage on March settlements Lake and Cook counties	10 00	
	31,	Chas. Kittelson, Treasurer, exchange on remittances	1 90	
June	28,	A. Currie, Sr., mileage, June settlement Murray county	2 60	
	29,	Chas. C. Wieland, mileage, June settlement Lake and Cook counties	10 00	
	29,	First National Bank, St. Paul, express and exchange on remittance to New York	78 04	
	30,	Chas. Kittelson, Treasurer, exchange and express charges paid on remittances	13 61	
July	18,	Chas. Kittelson, Treasurer, express charges on bonds to New York	38 50	
	29,	F. M. Campbell, mileage, June settlement Mille Lacs county	4 00	
	31,	Chas. Kittelson, Treasurer, express charges on remittances, &c	64 04	
Aug.	3,	Ole Rigg, Jr., mileage, June settlement Pope county	4 00	
	29,	Chas. Kittelson, Treasurer, express charges on remittances	42 92	
Sept.	23,	Ole Rigg, Jr., mileage, June settlement Pope county	4 00	
	29,	Chas. Kittelson, Treasurer, exchange paid on remittances	2 95	
Oct.	20,	Chas Kittelson, Treasurer, disbursing charges of Metropolitan Bank, N. Y., redeeming coupon number 1	164 25	
				$998 06

STATE BOARD OF IMMIGRATION, DEFICIENCY.

Mar.	2,	H. H. Young, Secretary, salary February	$100 00	
	3,	H. H. Young, account Norwegian pamphlet	20 66	
	11,	H. H. Young, postage, &c	50 00	
	30,	H. H. Young, Secretary, salary March	100 00	
Apr.	22,	H. H. Young, account salary April	25 00	
May	3,	H. H. Young, Secretary, postage, express charges, &c	100 00	
	3,	H. H. Young, Secretary, balance salary April	75 00	
	29,	H. H. Young, Secretary, salary May	100 00	
June	27,	H. H. Young, Secretary, postage and express charges	100 00	
	27,	H. H. Young, Secretary, salary June	100 00	
July	6,	Die Volkszeitung, printing on maps	90 00	
	19,	H. H. Houng, Secretary, on acc't salary July	40 00	
	25,	Pioneer Press Co., maps, &c	702 00	
Aug.	2.	H. H. Young, balance salary July	60 00	
	3,	H. H. Young, postage and express charges	150 00	
	24,	H. H. Young, postage and express charges	150 00	
	31,	H. H. Young, salary August	100 00	
Sept.	15,	H. H. Young, account salary September	40 00	
	15,	H. H. Young, Secretary, postage, &c	100 00	
	29,	H. H. Young, Secretary, balance salary Sept.	60 00	
Oct.	17,	H. H. Young, Secretary, account salary Oct.	40 00	
	17,	H. H. Young, Secretary, express charges, &c.	75 00	
Nov.	2,	H. H. Young, Secretary, balance salary Oct.	60 00	
	2,	H. H. Young, Secretary, express charges, &c.	100 00	
	23,	Illinois Staatszeitung, advertising for board in German	100 00	
	28,	H. H. Young, Secretary, acc't salary Nov.	50 00	
	28,	H. H. Young, Secretary balance salary Nov.	50 00	
				$2,737 66

STATE BOARD OF IMMIGRATION.

1881.				
Dec.	28,	H. H. Young, Secretary, salary December	$100 00	
	31,	H. H. Young, Secretary, postage, express charges, &c	150 00	
1882.				
Feb.	2,	H. H. Young, Secretary, salary January	100 00	
	2,	H. H. Young, Secretary, postage, express charges, &c	50 00	
Mar.	30,	H. H. Young, Secretary, postage, &c	47 35	
				$447 35

AGRICULTURAL SOCIETIES.

1882.			
Aug.	1,	E. H. Bailey, Cashier for State Agricultural Society	$1,000 00
	31,	Anoka County Agricultural Society	54 05
	31,	Becker County Agricultural Society	54 05
	31,	Blue Earth County Agricultural Society	54 05
	31,	Brown County Agricultural Society	54 05
	31,	Carver County Agricultural Society	54 05
	31,	Chisago and Pine County Agricultural Society	54 05
	31,	Chippewa County Agricultural Society	54 05
	31,	Dakota County Agricultural Society	54 05
	31,	Dodge County Agricultural Society	54 05
	31,	Faribault County Agricultural Society	54 05
	31,	Fillmore County Agricultural Society	54 05
	31,	Goodhue County Agricultural Society	54 05

Aug. 31,	Isanti County Agricultural Society	$54 05	
31,	Jackson County Agricultural Society	54 05	
31,	Lac qui Parle County Agricultural Society	54 05	
31,	Le Sueur County Agricultural Society	108 10	
31,	Lyon County Agricultural Society	54 05	
31,	McLeod County Agricultural Society	54 05	
31.	Martin County Agricultural Society	54 05	
31,	Meeker County Agricultural Society	54 05	
31,	Murray County Agricultural Society	54 05	
31,	Nicollet County Agricultural Society	54 06	
31,	Nobles County Agricultural Society	54 06	
31,	Olmsted County Agricultural Society	54 06	
31	Ramsey County Agricultural Society	54 06	
31,	Redwood County Agricultural Society	54 06	
31,	Renville County Agricultural Society	54 06	
31,	Rice County Agricultural Society	54 06	
31,	Scott County Agricultural Society	54 06	
31,	Stevens County Agricultural Society	54 06	
31,	Wadena County Agricultural Society	54 06	
31,	Waseca County Agricultural Society	54 06	
31,	Watonwan County Agricultural Society	54 06	
31,	Wright County Agricultural Society	54 06	
Sept. 5,	Clay County Agricultural Society	54 06	
			$2,945 94

STATE HORTICULTURAL SOCIETY.

1882.			
Jan. 19.	U. S. Hollister, order of president	$227 61	
Feb. 1,	J. T. Grimes, Treasurer, order of society	641 39	
July 14,	J. T. Grimes, Treasurer, order of society	500 00	
			$1,369 00

FARMERS' BOARD OF TRADE.

1882.			
Feb. 2,	George Giles, Secretary, per diem and mileage of members, September meeting, (1881)	$68 70	
2,	George Giles, Secretary, per diem and mileage of members, special meeting Jan. 31, '82	221 90	
	George Giles, Secretary, incidental expenses	50 00	
Sept. 6,	George Giles, Secretary, per diem and mileage of members, September meeting, (1882)	270 75	
			$611 35

STATE BOARD OF HEALTH.

1882.			
Jan. 9,	Chas. N. Hewitt, salary to Dec. 31, 1881	$179 14	
April 3,	Chas. N. Hewitt, Secretary, salary for quarter ending March 31	250 00	
7,	Chas. N. Hewitt, sundry expenses of board	584 12	
June 7,	Chas. N. Hewitt, sundry expenses of board	260 38	
30,	Chas. N. Hewitt, salary for quarter ending June 30	250 00	
Sept. 22,	Chas. N. Hewitt, sundry expenses of board	380 64	
Oct. 4,	Chas. N. Hewitt, salary for quarter ending September 30	250 00	
			$2,154 28

FISH COMMISSIONERS.

1882.			
Jan. 4,	R. O. Sweeny, expenses hatching fish, &c	$500 00	
Mar. 14,	R. O. Sweeny, expenses hatching and distributing fish, &c	1,000 00	
May 25,	R. O. Sweeny, expenses hatching fish, &c	1,500 00	
Aug. 9,	R. O. Sweeny, expenses breeding and distributing fish	1,500 00	
			$4,500 00

MISSISSIPPI RIVER COMMISSION.

1881.			
Dec. 27,	J. J. Randall, services attending Louisville convention	$80 00	
28,	Wm. Crooks, services attending conventions	220 00	
1882.			
Jan. 21,	E. W. Durant, services at St. Louis and Quincy conventions	180 00	
			$480 00

STATE BOARD OF EQUALIZATION.

1882.			
Sept. 14,	D. Bassett, per diem and mileage	$53 60	
14,	H. S. Sjoberg, per diem and mileage	85 40	
14,	Z. B. Page, per diem and mileage	80 00	
14,	J. Mc Nelly, per diem and mileage	105 50	
14,	Thos. Montgomery, per diem and mileage	72 50	
14,	S. W. Furber, per diem and mileage	54 80	
14,	J. G. Lawrence, per diem and mileage	71 60	
14,	G. C. Chamberlin, per diem and mileage	110 00	
14,	H. Thompson, per diem and mileage	151 40	
14,	James Compton, per diem and mileage	106 10	
16,	William Dawson, per diem, session 1882	50 00	
16,	W. W. Braden, per diem, session 1882	50 00	
Nov. 29,	M. D. Kenyon, services tabulating returns, &c	200 00	
			$1,190 90

REGISTER'S AND RECEIVER'S FEES.

1882.			
Apr. 4,	D. S. Hall, list of entries in Benson district	$56 45	
13,	J. P. Owens, list of entries in Taylor's Falls district	29 30	
14,	W. H. Alden, list of entries in St. Cloud district	44 20	
14,	John Cromb, list of entries Crookston district	66 40	
14,	C. B. Tyler, list of entries Tracy district	17 70	
17,	Mons Grinager, list of entries Worthington district	14 30	
17,	Wm. P. Dunnington, list of entries Redwood Falls district	16 45	
25,	T. H. Pressnell, list of entries Duluth district	67 65	
27,	J. H. Allen, list of entries Fergus Falls district	34 55	
			$347 00

MINNESOTA NATIONAL GUARDS.

1881.		
Dec. 28,	Ezra W. Goddard, Treasurer Minneapolis Light Infanty	$300 00
30,	A. B. Shipley, Treasurer Faribault Guards	300 00
1882.		
Jan. 6,	Charles McC. Reeve, Treasurer Minneapolis Zouaves	300 00
May 5,	Wm. Dawson, Treasurer Co. "D," 1st Battalion	300 00
27,	W. W. Price, Treasurer Co. "E," 2d Battalion	300 00
July 7,	C. St. P. M. & O. Ry. Co., freight and drayage on tents	103 79
11,	Thos. O'Brien, labor and material used at Camp Hubbard	51 75
11,	Thos. P. Wilson, per diem of militia	1026 00
11,	Thos P. Wilson, use of horses for artillery	168 00
13,	John Parker, hauling supplies	13 75
17,	Jos. Bobleter, transportation of men	9 00

July	19,	Thos. O'Brien, sundry services at Camp Hubbard	$31 30	
	22,	Thos. P. Wilson, freight, &c., on tents to Jeffersonville, Ind	96 00	
	24,	A. C. Hanley, drayage, telegrams, &c,	19 55	
	27,	Thos. P. Wilson, transportation and sundries for Camp Hubbard	172 09	
	31,	Geo. T. Gardner, acc't Co. "E," 2d Battalion.	300 00	
Aug.	8,	Geo. M. Naylor, acc't Co. "B," 1st Battalion..	300 00	
	28,	Pioneer Press Co., printing commissions	70 00	
				$3,861 23

SHERIFFS' FUND.

1882.			
Jan.	10,	H. F. Armstrong, 2 prisoners Goodhue county	26 40
	11,	J M. Eustis, 1 prisoner, Hennepin county	13 50
	14,	Theodore Wieland, 1 prisoner Scott county	13 75
	17,	G. Bartelson, 3 prisoners Otter Tail county	124 80
	21,	H. F. Armstrong, 1 prisoner Goodhue county	13 90
	27,	T. J. Sheehan, 2 prisoners Freeborn county	97 75
Feb.	8,	Hugh Connolly, 6 prisoners Dakota county	39 20
	13,	Fred Richter, 3 prisoners Ramsey county	19 70
Mar.	3,	Fred Richter, 1 prisoner Ramsey county	6 90
	16,	J. M. Eustis, 2 prisoners Hennepin county	15 50
	18,	J. M. Eustis, 3 prisoners Hennepin county	21 50
	18,	Peter Mertz, 3 prisoners Crow Wing county	108 20
	23,	J. M. Eustis, 2 prisoners Hennepin county	16 00
	27,	P. Mertz, 3 prisoners Crow Wing county	121 95
Apr.	5,	J. M Eustis, 1 prisoner Hennepin county	9 50
	11,	H. B Corey, 1 prisoner Mower county	58 60
	12,	P. Ekstrom, 1 prisoner Meeker county	23 55
	14,	F. E. Du Toit, 1 prisoner Carver county	27 25
	14,	Clark Chambers, 1 prisoner Steele county	15 50
	14,	J C. Nugent, 1 prisoner Wright county	49 50
	18,	W. J. Bodkin, 3 prisoners Clay county.	145 25
May	2,	J. M. Eustis, 1 prisoner Hennepin county	14 00
	9,	Walter Georgen, 1 prisoner, Houston county.	67 25
	10,	Joseph Culrcss, 2 prisoners Douglas county	72 40
	24,	Geo. W. Monks, 2 prisoners Blue Earth county	45 70
	31,	H. L Gish, 1 prisoner Le Sueur county	40 55
June	2,	J. A. Vaustrmm, 1 prisoner Kittson county	108 75
	3,	Gunder Bartelson, 3 prisoners Otter Tail county	124 80
	5,	J. M. Eustis, 3 prisoners Hennepin county	24 50
	10,	C. P. Holcomb, 7 prisoners Washington county	15 75
	10,	John Nugent, 2 prisoners Wright county	51 75
	13,	Henry Burkhardt, 3 prisoners Wabasha county	67 65
	16,	Fred Richter, 5 prisoners Ramsey county	43 15
	22,	H M. Richardson, 4 prisoners Olmsted county	91 35
	23,	M. Mickley, 4 prisoners Stearns county	66 35
	26,	J. A. Hunter, 1 prisoner Lyon county.	86 00
	27,	John Seberger, 1 prisoner Stearns county	20 35
	28,	B. F. Zaracher, 2 prisoners Polk county	121 45
	30,	Theo Wieland, 2 prisoners Scott county	26 50
July	1,	Ara Barton, 1 prisoner Rice county	32 00
	12,	Hugh Connolly, 1 prisoner Dakota county	17 50
Sept.	26,	H. F. Armstrong, 1 prisoner Goodhue county.	28 50
Oct.	5,	J. C. Frost, 1 prisoner Anoka county	17 35
	14,	J. C. Nugent, 3 prisoners Wright county	72 40
	20,	Jacob Zimmerman, 2 prisoners St. Louis county	68 10
	26,	Walter Goergen, 1 prisoner Houston county	67 25
	27,	P. H Stolberg, 3 prisoners Chisago county	81 90
	30,	E. V. Bogart, 5 prisoners Winona county	85 95

Nov.	4,	A.I.Ammundson, 4 prisoners Chippewa county	$141 70	
	10,	P. A. Odell, 1 prisoner Kandiyohi county	40 55	
	15,	E. V. Bogart, 2 prisoners Winona county	48 70	
	16,	J. M. Eustis, 5 prisoners Hennepin county	26 00	
	22,	Henry Moll, 1 prisoner Nicollet county	36 70	
	25,	S. A. Langum, 1 prisoner Fillmore county	72 00	
	27,	H. Burkhardt, 2 prisoners Wabasha county	41 10	
				$2,884 15

REQUISITION FUND.

1882.				
Jan.	7,	Thos. Downs, expenses case of J. P. Haubris	$112 80	
	25,	H. B. Corey, expenses case of State vs. Moan, Mower county	273 90	
Mch.	18,	John B. Bresett, expenses case of State vs. Bostater	175 00	
July	10,	Fred Richter, expenses case of State vs. F. Illingsworth	63 50	
Aug.	17,	H. B. Corey, expenses case of L. D. Rice	63 15	
				$688 85

ARREST AND CONVICTION OF HORSE THIEVES.

1882.				
Feb.	18,	Treasurer Le Sueur county, ½ of reward	$100 00	
M'ch	15,	Treasurer Blue Earth county, 1 reward	200 00	
	16,	Treasurer Chippewa county, 1 reward	200 00	
	16,	Treasurer Redwood county, 1 reward	200 00	
	30,	Treasurer Waseca county, 3 rewards	600 00	
June	28,	Treasurer Carver county, 1 reward	199 98	
July	29,	Treasurer Le Sueur county, 1 reward	200 00	
	29,	Treasurer Meeker county, 1 reward	200 00	
	29,	Treasurer Rice county, 1 reward	200 00	
Nov.	14,	Treasurer Wabasha county, 1 reward	200 00	
	14,	Treasurer Steele county, 1 reward	200 00	
				$2,499 98

TREE PLANTING CLAIMS.

1882.			
Jan.	9,	N. A. Jones, thirteen acres trees	$26 00
	14,	Mary A. Watt, four acres and ½ mile	10 00
	14,	W. T Glover, three acres	6 00
	14,	A. W. Sanborn, one half mile	2 00
	14,	T. A. Hotson, eight acres	16 00
	14,	G. E. Skinner, for Mary A. Watt, four acres and one-half mile	10 00
	14,	A. B. Clark, three acres	6 00
	14,	J. M. Sloan, ten acres	20 00
	14,	M. P. Mran, five acres	10 00
	14,	J. B. Moe, one acre	2 00
	14,	C. C. Cox, four acres	8 00
	14,	Ole Sevatson, four acres	8 00
	14,	R. McDowell, four acres	8 00
	14,	A. H Grout, two acres	4 00
	14,	O. A. Hulett, one mile	4 00
	14,	Chris C. Moe, one acre and one-half mile	4 00
	14,	Simon S. Kovgaard, three acres	6 00
	14,	John C. Peterson, three acres	6 00
	14,	Stewart Young, five acres	10 00
	14,	John Nelson, one acre	2 00
	14,	Lars T. Viste, two acres	4 00
	14,	Egbert Larson, one mile	4 00
	14,	Peter Tretson, two acres	4 00
	14,	James Olson, one acre	2 00

Jan.	14,	Julius Zelmer, one acre....................	$2 00
	14,	F. W. Nurnberg, one acre and one-half mile.	4 00
	14,	Wm. Nurnberg, three acres..	6 00
	14,	Lars Engbretson, three acres and one-half mile	8 00
	14,	C. Taulbert, two acres.....................	4 00
	14,	C. Hoefer, two acres........................	4 00
	14,	F. Mercort, four acres......................	8 00
	14,	Anton Larson, three acres	6 00
	14,	F. B. Frost, eight acres........	16 00
	14,	D. Macnab, three acres and one-half mile....	8 00
	14,	W. Macnab, one acre and one-half mile......	4 00
	14,	J. B. Shauver, three acres and four miles....	22 00
	14,	J. B. Martin, five acres................. ...	10 00
	14,	H. Martin, ten acres......	20 00
	14,	B F. Thurber, two acres trees...............	4 00
	14,	Julian M. Chaney, two acres................	4 00
	14,	Hy Farragher, two acres....................	4 00
	14,	Wm. Parry, five acres...............	10 00
	14,	E. Erickson, (Fields) two acres..............	4 00
	14,	C. H. Morrison, one acre...................	2 00
	14,	J. K. Dewey, six acres................. ...	12 00
	14,	M. Burkett, four acres......................	8 00
	14,	Nick Lons, one acre....	2 00
	14,	Martin Peterson, four acres.................	8 00
	14,	H. Hermanson, two acres...................	4 00
	14,	Andrew Felt, one acre......................	2 00
	14,	E. Tostenson, two acres....................	4 00
	14,	O. O. Hansen, four acres...................	8 00
	14,	Seven Swenson, three acres and ½ mile	8 00
	14,	Elling Tostenson, two acres............ ...	4 00
	14,	O. P. Renne, two acres................. ...	4 00
	14,	N. N. Ostrom, eight acres..................	16 00
	14,	D. Pedvin, five acres........	10 00
	14,	C. D. Ash, four acres..........	8 00
	14,	I. Lindley, three acres	6 00
	14,	J. Parker, three acres...	6 00
	14,	S. V. Hayroft, one acre....................	2 00
	14,	F. Azaike, three acres......................	6 00
	14,	D. Bohan, four acres.......	8 00
	14,	N. A. Melick, five acres.....................	10 00
	14,	G. Drake, three acres........	6 00
	14,	H. Morrill, eight acres.....................	16 00
	14,	I. Hernawan, four acres....................	8 00
	14,	W. W. Case, three acres..............	6 00
	14,	C. E. Slocum, two acres....................	4 00
	14,	C. C. Sylvester, 10 acres....................	20 00
	14,	I. Drake, four acres........................	8 00
	14,	W. Johnson, one acre................	2 00
	14,	K. Allen, four acres.........................	8 00
	14,	N. B. Jaquist, four acres...................	8 00
	14,	D. H. Forsyth, three acres..................	6 00
	14,	C. Brozanky, two acres.....................	4 00
	14,	J. B. Sheelz, three acres..	6 00
	14,	M. Bradford, eight acres....................	16 00
	14,	I. Shilleto, two acres.......................	4 00
	14,	D. B. Coleman, eleven acres................	22 00
Feb.	8,	L. R. Hillman, 25 acres and one mile........	50 00
	24,	Patrick Colter, acc't 2 acres for 1880 & '81 each	8 00
May	9,	E. F. Wade, four acres and ½ mile..........	10 00
	9,	J. N. Longstreet, four acres................	8 00
	9,	W. P. McGahan, one acre..................	2 00
	9,	J. E. Steele, one acre.......................	2 00

May	9,	Chas. Pennington, five acres	$ 10 00
	9,	C. H. Morrison, one acre	2 00
	9,	Emma J. Goldsmith, two acres	4 00
	9,	M. E. St John, two acres	4 00
	13,	Dennis O'Brien, six acres	12 00
	13,	John Burns, five acres	10 00
July	10,	John A. Burdick, five acres	10 00
Sept.	28,	N. A. Jones, thirteen acres	26 00
Oct.	27,	L. R. Hillman, 23 acres and ½ mile	48 00
	27,	Jno. O'Shaugnessy, one acre	2 00
Nov.	6,	Bertrand Dominick, three acres	6 00
	6,	E. P. Bertrand, five acres	10 00
	6,	Bernard Bloanke, three acres	6 00
	6,	F. Schubert, two acres	4 00
	6,	Thos. Chute, three acres	6 00
	6,	James Chancey, two acres	4 00
	6,	L. S. Cunningham, 17 acres and ½ mile	36 00
	6,	Wm. Cutting, one acre	2 00
	6,	Lars Frederickson, four acres	8 00
	6,	Edward Grimes, three acres	6 00
	6,	Wm. Grimes, six acres	12 00
	6,	Fred. Koenig, one acre	2 00
	6,	Elhra Ladd, one acre	2 00
	6,	Elans Memert, four acres	8 00
	6,	Jno. C. Peterson, three acres	6 00
	6,	N. Prickett, two acres	4 00
	6,	Wm. Roseback, six acres	12 00
	6,	E. A. Traxet, five acres	10 00
	6,	Jno. A. Upson, two acres	4 00
	6,	T. H. King, five acres	10 00
	6,	Swan Peterson, two acres	4 00
	6,	John Anderson, two acres	4 00
	6,	James Anderson, four acres	8 00
	6,	H. D. Wylie, five acres,	10 00
	6,	Jas. J. Goar, three acres	6 00
	6,	John Rohr, four acres	8 00
	8,	Henry Farragver, two acres	4 00
	8,	Wm. Parry, five acres	10 00
	8.	C. H. Morrison, one acre	2 00
	8,	E. Erickson Felds, two acres	4 00
	8,	R. F. Thurber, two acres	4 00
	8,	Julia M. Chaney, two acres	4 00
	8,	J. B. Dewey, six acres and one-half mile	14 00
	8,	Miles Berkitt, four acres and one-half mile	10 00
	8,	O. C. O. Hanyen, four acres	8 00
	8,	N. N. Ostrom, eight acres	16 00
	8,	Elling Torstensen, two acres	4 00
	8,	Erick Torstensen, four acres and one-half mile.	10 00
	8,	Swen Swenson, one acre	2 00
	8,	Geo. E. Skinner, five acres and one-half mile.	12 00
	8,	R. E. Stewart, six acres and one-half mile	14 00
	8,	W. F. Glover, three acres	6 00
	8,	A. W. Sanborn, one-half mile	2 00
	8,	T. A. Hotson, five acres	10 00
	8.	W. M Corbitt, one acre and one-half mile	4 00
	8,	M. L. Corbitt, one acre and one-half mile	4 00
	8,	James McCarthy, seven acres	14 00
	9,	M. C. Seeley, three acres	6 00
	9,	E. T. Matcher, ten acres	20 00
	9,	Martin L gue, one acre	2 00
	9,	J. M. Utter, five acres	10 00
	9,	M. S. Barney, five acres	10 00

Nov.	9,	R. K. Craugia, three acres	$ 6 00
	9,	H. White, five acres	10 00
	9,	E. Benjamin, two acres and one-half mile	6 00
	9,	Dan Danielson, two acres	4 00
	9,	James Randall, two acres	4 00
	9,	Geo. Benver four acres	8 00
	9,	Euseba Johnson, three acres	6 00
	9,	Thos. Goodwin, three acres	6 00
	9,	Geo. P. Lee, two acres	4 00
	9,	Henry Blacky, one acre	2 00
	9,	A. R. Kilm, one acre	2 00
	9,	Theoud Theoudson, four acres	8 00
	9,	Elaus Hanson, three acres	6 00
	9,	J. J. Skrove, one acre	2 00
	9,	Lars L. Sogge, one acre	2 00
	9,	E. Sevatson, ten acres	20 00
	9,	A. Hohenstein, eight acres	16 00
	9,	C. F. W. Malchow, one acre	2 00
	9,	Wm. Doll, one acre	2 00
	9,	Chas. Malchow, two acres	4 00
	9,	Dan Callender, one acre	2 00
	9,	John Stohenstein, one acre	2 00
	9,	J. W. Root, five acres	10 00
	9,	Stephen Rhenalt, two acres	4 00
	9,	Wm. Schway, two acres	4 00
	9,	Fred Malchow, two acres	4 00
	9,	E. W. Pertz, one acre	2 00
	9,	Julius Deger, seven acres	14 00
	9,	John Butterfield, one acre	2 00
	9,	F. Mittlestat, three acres	6 00
	9,	Wm. Railke, two acres	4 00
	9,	N. Weber, two acres	4 00
	9,	Wm. Rost, three acres	6 00
	9,	Herman Rost, five acres	10 00
	9,	Hillman Rost, four acres	8 00
	9,	A. Rost, five acres	10 00
	9,	Wm. Wiley, six acres	12 00
	9,	John Dobriner, two acres	4 00
	9,	Z. Judd, three acres	6 00
	9,	J. N. Dodge, four acres	8 00
	9,	Wm. A. Mosher, three acres	6 00
	9,	M. J. Blaisdall, three acres	6 00
	9,	Isaac Wheeler, three acres	6 00
	9,	A. Gruhlke, two acres	4 00
	9,	E. Kilen, two acres	4 00
	9,	A. Rosson, one acre	2 00
	9,	M. P. Moran, five acres	10 00
	9,	J. B. Moe, one acre	2 00
	9,	Geo. McKean, four acres	8 00
	9,	James Brown, nine acres and one half mile	20 00
	9,	Elizabeth Jones, ten acres	20 00
	9,	D. H. Forsyth, three acres	6 00
	9,	Robert Rowland, one acre	2 00
	9,	S. V. Haycraft, one acre	2 00
	9,	Geo. Drake, three acres	6 00
	9,	Warren Johnson, one acre	2 00
	9,	W. W. Case, three acres	6 00
	9,	C. D. Ask, four acres	8 00
	9,	K. F. Allen, four acres	8 00
	9,	Joel Parker, two acres	4 00
	9,	John Sternman, four acres	8 00
	9,	C. C. Sylvester, ten acres	20 00

Nov. 9,	N. B. Jaquist, four acres	$8 00
9,	C. E. Slocum, two acres	4 00
9,	Daniel Bohan, four acres	8 00
9,	M. Bradford, eight acres	16 00
9,	J. P. Schultz, three acres	6 00
9,	J. C. Lindley, three acres	6 00
9,	F. A. Zinke, three acres	6 00
9,	Carl Brojinskey, two acres	4 00
9,	Daniel Pedvin, five acres	10 00
9,	N. A. Melisk, five acres	10 00
9,	John Shillets, two acres	4 00
9,	J. A. Longstreet, four acres	8 00
9,	A. G. Ballon, one acre	2 00
9,	Chas. Pennington, two acres	4 00
9,	E. J. Goldsmith, two acres	4 00
9,	T. S. Levemore, four acres	8 00
9,	G. Murray, two acres	4 00
9,	Jno. Allison, eight acres	16 00
9,	B. E. St. John, four acres	8 00
9,	G. R. Moor, three acres	6 00
9,	Aaron Matson, two acres	4 00
9,	Chas. Rolloff, one acre	2 00
9,	A. Barchardt, three acres	6 00
9,	M. E. St. John, two acres	4 00
9,	C. D. Hatch, four acres and ½ mile	10 00
9,	L. F. True, six acres and one mile	16 00
9,	M. S. Pope, two acres	4 00
9,	V. Wohlhuter, one acre	2 00
9,	A. Wenburg, two acres	4 00
9,	A. Wenberg, two acres	4 00
9,	A. Yeriner, two acres	4 00
9,	C. Yeriner, one acre	2 00
9,	C. C. Anderson, one acre	2 00
9,	Jno. Baker, seventeen acres	34 00
9,	G. F. Pixley, seventeen acres	34 00
9,	O. W. Curttis, twenty acres	40 00
9,	O. W. Curttis, thirty-five acres	70 00
9,	G. M. Walzet, two acres	4 00
9,	Wm. McGhan, one acre	2 00
9,	H. R. Steele, one acre	2 00
9,	J. E. Steele, one acre	2 00
9,	J. C. Strong, four acres	8 00
10.	J. H. Brown, fourteen acres	28 00
10,	C. A. Gould, three acres	6 00
10,	Jno. E. Sundley, two acres	4 00
10,	Jno. H. Brown, fourteen acres	28 00
10,	Chas. A. Gould, three acres	6 00
10,	Jno. E. Sundley, two acres	4 00
10,	Jno. H. Brown, fourteen acres	28 00
10,	Jno. E. Sundley, two acres	4 00
10,	Chas. A. Gould, three acres	6 00
10,	Jno. H. Brown, fourteen acres	28 00
10,	Jno. E. Sundley, two acres	4 00
10,	Chas. A. Gould, three acres	6 00
11,	C. C. Borchers, one acre	2 00
11,	B. Jansen, one acre	2 00
11,	G. L. Thaden, one acre	2 00
11,	R. McDowell, four acres	8 00
11,	L. S. Viste, two acres	4 00
11,	O. C. Swatson, four acres and ½ mile	10 00
11,	C. C. Cox, four acres and ½ mile	10 00
11,	O. A. Hulett, one mile	4 00

Nov. 11,	F. Miercort, four acres	$8 00
11,	C. C. Moe, one acre and ⅛ mile	4 00
11,	Jno. Nelson, one acre	2 00
11,	F. B. Frost, eight acres	16 00
11,	J. C. Peterson, three acres	6 00
11,	Erick Evens, one acre	2 00
11,	Lars Engebretson, ⅛ mile	2 00
11,	Peter W. Treten, ⅛ mile	2 00
11,	Engbret Larson, one mile	4 00
11,	John Green, seven acres	14 00
11,	Stewart Young, five acres	10 00
11,	James Gleson, one acre	2 00
11,	Chris. Stoafer, two acres	4 00
11,	E. Saubert, two acres	4 00
11,	Donald Macnab, three acres and half mile	8 00
11,	Wm. Macnab, one acre and half mile	4 00
11,	Henry Martin, ten acres	20 00
11,	J. B. Sawyer, three acres and two miles	14 00
11,	J. B. Martin, five acres	10 00
13,	Thos. Donnovan, one acre	2 00
13,	Johannah Coller, four acres	8 00
13,	L. D. Stolmes, seven acres	14 00
13,	Pat. Fitzgerald, one acre	2 00
13,	B. Cochlin, one acre	2 00
13,	L. F. Scott, nine acres	18 00
13,	A. H. Stephens, two acres	4 00
13,	J. B. Purdie, four acres	8 00
13,	Torger Samuelson, two acres	4 00
13,	Anders Petersen, two acres	4 00
13,	S. Gunderson, two acres	4 00
13,	Patrick Cotter, two acres	4 00
13,	H. Chamberlain, three acres	6 00
13,	W. Pierce, five acres	10 00
13,	M. Fitzgerald, one acre	2 00
13,	E. C. Johnson, one acre	2 00
13,	R. Fitzgerald, two acres	4 00
13,	J. F. Jones, four acres	8 00
13,	J. A. Burdick, six acres	12 00
13,	E. G. Moore, one acre	2 00
13,	A. Schult, two acres	4 00
13,	Richard Quinn, two acres	4 00
13,	M. Fenton, three acres	6 00
13,	S. J. Fuller, two acres	4 00
13,	M. J. Howe, two acres	4 00
13,	F. W. Purdie, two acres	4 00
13,	Wm. Morin, thirty-three acres	66 00
13,	Hans Nelson, one acre	2 00
13,	Edward Cotter, two acres	4 00
13,	A. A. Davis, three acres	6 00
13,	James Hanson, one acre	2 00
13,	H. E. Towne, three acres	6 00
13,	Amanda Pierce, one acre	2 00
13,	Sabina Eustrom, two acres	4 00
13,	Wm. P. Pickle, four acres	8 00
13,	Wm. Emmerson, three acres	6 00
13,	Nels Johnson, three acres	6 00
13,	Swan Johnson, two acres	4 00
13,	John Kranshaw, three acres	6 00
13,	Rebecca West, one acre	2 00
13,	Thos. Cashman, two acres	4 00
13,	Peter Petersen, three acres	6 00
13,	Michael Alman, two acres	4 00

Nov. 13,	James Cushman, two acres	$4 00
13,	F. G. Sloan, ex. eight acres	16 00
13,	A. B. Clark, three acres	6 00
13,	W. L. Taylor, two acres	4 00
13,	J. B. Jones, ½ mile	2 00
13,	S. Huntington, two acres	4 00
13,	A. Schofield, two acres	4 00
13,	Robt. Miller, one acre	2 00
13,	Amos Rank, two acres	4 00
13,	Thos. H. Jones, three acres	6 00
13,	Helge Helickoon, two acres	4 00
13,	A. J. Gilman, six acres	12 00
13,	H. Bomt, one acre and ½ mile	4 00
14,	D. B. Coleman, eleven acres and six miles	46 00
14,	D. B. Coleman, six miles (1881)	24 00
14,	J. A. Berg, one acre	2 00
14,	Harrison Smoots, one acre	2 00
14,	Alanzon Richards, one acre	2 00
14,	C. F. Svendson, one acre	2 00
14,	J. A. Jacobson, two acres	4 00
14,	W. H. Harris, two acres	4 00
14,	J Lundgren, one acre	2 00
14,	John M. Monson, one acre	2 00
14,	R. F. Clough, two acres	4 00
14,	Jonas G. Monson, four acres	8 00
14,	J. B. Boyd, four acres	8 00
14,	W. B. Silliman, twelve acres	24 00
14,	Phebe S. Young, three acres	6 00
14,	Edwin A. Pond, four acres	8 00
14,	J. W. Young, one acre	2 00
14,	Kate Moffitt, two acres	4 00
14,	Frank Barnes, five acres	10 00
14,	Dennis Hynes, four acres	8 00
14,	Russell Richardson, one acre and ½ mile	4 00
14,	Alfred Bartlett, four acres	8 00
14,	S N. Cahoon, three acres	6 00
14,	W. R. Miller, six acres	12 00
14,	N. McColley, six acres	12 00
14,	J. W. Young, two acres	4 00
14,	E. A. Pond, three acres	6 00
14,	James Ogilvie, two acres	4 00
14,	Lorenzo Nichols, two acres	4 00
14,	B. R. Whitney, six acres	12 00
14,	H. E. Legrold, one acre	2 00
14,	L. R. Woodwick, one acre	2 00
14,	Alfred Bartlett, eighteen acres	36 00
14,	Ole Crenson four acres	8 00
14,	Jas Beard, three acres	6 00
14,	C. C. Briggs, one acre	2 00
14,	Orson Reid, two acres	4 00
14,	G. A. Gilbert, one acre	2 00
14,	Rufus Johnson, nine acres	18 00
14,	S. A. Rallastad, three acres	6 00
14,	Jno. Carson, four acres	8 00
14,	Loisa Fenske, four acres	8 00
14,	C. S. Dunbar, one acre	2 00
14,	H. O Ives, one acre	2 00
14,	Christian Sjolden, one acre	2 00
14,	A. E. Champney, three acres	6 00
14,	Robert More, one acre	2 00
14,	A. P. Talle, one acre	2 00
14,	Jno. Reed, one acre	2 00

14,	Ole Fmondale, six acres	12 00	
14,	Frederick Jennings, one mile	2 00	
14,	Edward Eberline, one acre	2 00	
14,	Jno. Kenedy, two acres	4 00	
14,	B. H. Langworthy, one acre	2 00	
14,	Moretz Nuiman, five acres	10 00	
14,	Wm. F. Lawrence, three acres	6 00	
14,	Abram Foster, ½ mile	2 00	
14,	Jno. Wilson, Sr., six acres	12 00	
14,	Jno. Wilson, Jr., four acres	8 00	
14,	Jno. Emerson, two acres	4 00	
14,	F. M. Pierce, two acres	4 00	
14,	Edward Emeline, one acre	2 00	
14,	Wm. Densmore, four acres	8 00	
14,	R. B. Johnson, three acres	6 00	
14,	Jno. Kenedy, one acre	2 00	
14,	Jos. Claggett, two acres	4 00	
14,	B. H Langworthy, one acre	2 00	
14,	Louis Claude, two acres	4 00	
14,	F. D. Stadtien, four acres	8 00	
14,	Gustavus Claude, two acres	4 00	
14,	D. M. Houston, one acre	2 00	
14,	G. D. Bassett, one acre	2 00	
14,	J. M. Showalter one acre	2 00	
14.	Jacob Bachtle, four acres	8 00	
14,	Torston Johnson, one acre	2 00	
14,	George Hassing, five acres	10 00	
14,	G. B. Bassett, one mile	4 00	
14,	J. M. Showalter, ½ mile	2 00	
14,	C. C. Briggs, four acres	8 00	
14,	C. S. Dunbar, one acre	2 00	
14,	H. O. Ives, one acre	2 00	
14,	Robert More, one acre	2 00	
14,	Isaac Staples, five acres	10 00	
14,	Alfred Bartlett, one acre	2 00	
			$3,244 00

WOLF BOUNTIES.

1882		
Mar. 18,	Chas. Kittelson, State Treasurer, orders redeemed	$172 00
30,	Chas. Kittelson, State Treasurer, orders redeemed	1,512 00
31,	Chas. Kittelson, State Treasurer, orders redeemed	130 00
April 6,	Chas. Kittelson, State Treasurer, orders redeemed	687 00
13,	Chas. Kittelson, State Treasurer, orders redeemed	176 00
22,	Chas. Kittelson, State Treasurer, orders redeemed	45 00
29,	Chas. Kittelson, State Treasurer, orders redeemed	75 00
May 5,	Chas. Kittelson, State Treasorer, orders redeemed	267 00
June 28,	Chas. Kittelson, State Treasurer, orders redeemed	727 00
30,	Chas. Kittleson, State Treasurer, orders redeemed	29 00
July 28,	Chas. Kittelson, State Treasurer, orders redeemed	232 00
29,	Chas. Kittleson State Treasurer, orders redeemed	2,675 00

July 29,	Chas. Kittelson, State Treasurer, orders redeemed	$212 00	
Aug. 21,	Chas. Kittleson, State Treasurer, orders redeemed	1,061 00	
		$8,000 00	

WOLF BOUNTIES—DEFICIENCY.

1881.			
Dec. 27,	Chas. Kittelson, State Treasurer, orders redeemed	$119 00	
27,	Char. Kittelson, State Treasurer, orders redeemed	299 00	
Aug. 21,	Chas. Kittelson, State Treasurer, orders redeemed	317 00	
26,	Chas. Kittelson, State Treasurer, orders redeemed	260 00	
Sept. 22,	Chas. Kittelson, State Treasurer, orders redeemed	114 00	
29,	Chas. Kittelson, State Treasurer, orders redeemed	3 00	
Oct. 31,	Chas. Kittelson, State Treasurer, orders redeemed	79 00	
Nov. 14,	Chas. Kittelson, State Treasurer, orders redeemed	48 00	
			$1,239 00

HIGH SCHOOL BOARD OF EXAMINERS.

1882.		
Jan. 4,	D. L. Kiehle, postage and expenses of board	$ 59 05
M'ch 16,	D. L. Kiehle, records, blanks and sundry expenses of board	124 76
July 6,	D. L. Kiehle, sundry expenses of board	242 86
Oct. 7,	D. L. Kiehle, sundry expenses of board	139 31
Nov. 9,	D. L. Kiehle, expenses of board	48 30
July 25,	W. T. Wilkins, Treas. Austin High School, order of board	400 00
25,	J. M. Martin, treas. Lake City High School, order of board	400 00
25,	Geo. G. Stevens treas. Rushford High School, order of board	400 00
25,	O. L. Cutter, treas. Anoka High School, order of board	400 00
25,	A. D. Keyes, treas. Faribault High School, order of board	400 00
25,	W. A. Ham, treas. Farmington High School, order of board	400 00
25,	H. M. Peyton, treas. Duluth High School, order of board	400 00
25,	T. G. Mealey, treas. Monticello High School, order of board	400 00
25,	Jos. Edelbrock, treas. St. Cloud High School, order of board	400 00
25,	Thos. Montgomery, treas. St. Peter High School, order of board	400 00
25,	Bruce Florer, treas. Wabasha High School, order of board	400 00
25,	R. Burchard, treas. Plainview High School, order of board	400 00
25,	L. G. Nelson, treas. Kasson High School, order of board	400 00
25,	Jas. Timpane, treas. Waterville High School, order of board	400 00

July	25,	J. E. Whitman, treas. Spring Valley High School, order of board	$400 00	
	25,	D. Williams, treas. Garden City High School, order of board	400 00	
	25,	John Adams, treas. Mantorville High School, order of board	400 00	
	25,	G. A. Frizzell, treas. Rochester High School, order of board	400 00	
	25,	A. O. Sather, treas. Cannon Falls High School, order of board	400 00	
	25,	H. H. Lures, treas. Owatonna High School, order of board	400 00	
	25,	E. V. Canfield, treas. Zumbrota High School, order of board	400 00	
	25,	E. A. Kiene, treas. Henderson High School, otder of board	400 00	
	25,	S. Pendergast, treas. Sauk Centre High School, order of board	400 00	
	25,	R. A. Foyle, treas. Stillwater High School, order of board	400 00	
	25,	L. H. Blaising, treas. Hutchinson High School, order of board	400 00	
	25,	B. C. Howes, treas. Hastings High School, order of board	400 00	
	25,	John C. Noe, treas. Mankato High School, order of board	400 00	
	25,	W. Shimer, treas. Chatfield High School, order of board	400 00	
	25,	Bengt Hanson, treas. Litchfield High School, order of board	400 00	
Aug.	3,	A. G. Anderson, treas. Carver High School, order of board	400 00	
	4,	Ellen M. Winship, treas. Winnebago City High School, order of board	400 00	
	4,	O. Paulson, treas. Willmar High School, order of board	400 00	
	11,	W. R. Merriam, cashier for Red Wing High School, order of board	400 00	
	16,	E. G. Wood, treas. Waseca High School, order of board	400 00	
	26,	W. P. Sergeant, treas. Albert Lea High School order of board	400 00	
	26,	F. F. White, treas. Blue Earth City High School, order of board	400 00	
	30,	E. H. Bailey, cashier for Worthington High School, order of board	400 00	
Oct.	24,	L. Quackenbush, treas. Le Sueur High School, order of board	400 00	
				$15,814 28

BOND ADJUSTMENT EXPENSES.

1881.			
Dec.	27,	F. E. Curtis, services, reporter for commission	$19 40
	28,	St. Paul Lith. & Eng. Co., work on new bond	75 00
	30,	Victor Hjortsberg, affixing seal to new bonds.	40 00
1882.			
Jan.	2,	M. D. Kenyon, services tabulating claims, &c.	25 00
	2,	Wm. H. Kelley, services tabulating claims, bonds, &c	25 00
	2,	Thos. Cahill, services tabulating claims, &c..	25 00
	2,	W. L. Vincent, services tabulating claims, &c.	25 00
	4,	German-American Bank, St. Paul, rent of safe in deposit vault	100 00

Jan. 7,	Prendergast Bros., cases for bonds	$ 11 90	
9,	F. E. Curtis, transcribing testimony	7 00	
9,	J. S. Pillsbury, expenses of claim commission.	1,100 00	
10,	R. O. Sweeny, ink	1 50	
14,	St. Paul Dispatch, advertising notice to claimants	10 12	
14,	Wm. H. Kelley, tabulating and arranging bonds for burning	25 00	
14,	J. W. Florence, tabulating bonds, claims, &c.	100 00	
14,	Thos. Cahill, labor paying claims and bonds.	25 00	
16,	Pioneer Press Co., lists and register	23 50	
Feb. 4,	O. G. Miller, printing circulars	2 50	
March 3,	Pioneer Press Co., bonds and agreements	73 00	
3,	Pioneer Press Co., adv. notice to claimants	9 00	
April 20,	Pioneer Press Co., receipt books for claims	2 00	
			$1,724 92

BRIDGE AND ROAD APPROPRIATIONS.

1882.		
Jan. 23,	A. M. Ellithorp, C. J. Nelson and P. B. Nettelson, Chippewa and Lac qui Parle County bridges	$400 00
25,	Treas. Town of Winnebago City, Blue Earth River bridge	500 00
Feb. 20,	Treas Watonwan County, Watonwan River bridge	350 00
March 3,	C. F. Sims, Ole Narveson and J. A. McKay, Winona Lake bridge	400 00
16,	Treas. Douglas County, Lake Victoira bridge	400 00
17,	Treas. Town of Kandiyohi, Kandiyohi Lake bridge	500 00
April 25,	Treas. Town of Mantorville, Mantorville River bridge	300 00
May 3,	Treasurer Wadena County, Verndale and Kindred road	800 00
6,	Treas. Chippewa County, Chippewa River bridge	250 00
July 20,	Treas. Rock County, Rock River bridge	400 00
20,	Treas. Chippewa County, Chippewa River bridge, balance due	350 00
20,	Treas. Stevens County, Pomme de Terre River bridge	250 00
20,	Treas. Pope County, Chippewa River bridge, (Pope County.)	200 00
20,	Treas. Lincoln County, Yellow Medicine River bridge	100 00
20,	Treas. Cottonwood County, Des Moines River bridge	600 00
21,	Treas. Blue Earth County, Blue Earth River bridge	300 00
31,	Treas. Watonwan County, Watonwan River bridge	250 00
Aug. 3,	Treas. Douglas County, Long Prairie River bridge	200 00
3,	Treas. Brown County, Big Cottonwood River bridge	250 00
7,	Treas. Lac qui Parle County, Lac qui Parle River bridge	495 00
Sept. 30,	Treas. Crow Wing County, Cass Co., bridges	1,000 00
Oct. 5,	C. H. Chadbourne, Anoka and Princeton road.	175 00
10,	W. B. Brown and C. C. Fuller, Rock River bridge, Pipestone County	580 00

Oct. 19,	Treas. Renville County, Buffalo Creek bridge..	$300 00	
Nov. 10,	Treas. Rock County, Rock River bridge......	1,500 00	
14,	C. T. Anderson, Prairie Lake bridge, Martin County..........	350 00	
			$10,200 00

MISCELLANEOUS AND PERSONAL APPROPRIATIONS.

1882.		
June 17,	M. E. Dunn, treasurer, appropriation for Watonwan county...	$54 55

PERMANENT SCHOOL FUND.

1881.		
Dec. 31,	W. R. Merriam, cashier, purchase of 200 Minn. 4½ per cent bonds.............	$200,000 00
1882.		
Jan. 2,	German-American Bank, St. Paul, purchase of 10 Minn. 4½ per cent bonds.........	10,000 00
3,	1st National Bank, St. Paul, purchase of 77 Minn. 4½ per cent bonds.............	77,000 00
3,	1st National Bank, St. Paul, purchase of 7 Minn. 4½ per cent bonds.............	7,000 00
5,	German-American Bank, St. Paul, purchase of 12 Minn. 4½ per cent bonds.........	12,000 00
5,	Erastus S. Edgerton, purchase of 27 Minn. 4½ per cent bonds....................	27,000 00
5,	1st Nat. Bank, St. Paul, purchase of 61 Minn. 4½ per cent bonds.............	61,000 00
6,	H. M. Knox, purchase of 22 Minn. 4½ per cent bonds...................... ...	22,000 00
6,	Wm. H. Dike, purchase of 2 Minn. 4½ per cent bonds.	2,000 00
6,	Chas. McIlrath, purchase of 1 Minn. 4½ per cent bond...........................	1,000 00
7,	Henry Hale, purchase of 24 Minn. 4½ per cent bonds	24,000 00
7,	W. H. Temple, purchase of 37 Minn. 4½ per cent bonds.......................	37,000 00
7,	A. Oppenheim, purchase of 9 Minn. 4½ per cent bonds..........................	9,000 00
9,	E. H. Bailey, cashier, purchase of 28 Minn. 4½ per cent bonds...................	28,000 00
9,	E. H. Bailey, cashier, purchase of 64 Minn. 4½ per cent bonds...................	64,000 00
14,	H. V. Bostwick, purchase of 3 Minn. 4½ per cent bonds	3,000 00
14,	E. H. Bailey, purchase of 34 Minn. 4½ per cent bonds.........................	34,000 00
14,	E S. Edgerton, purchase of 1 Minn. 4½ per cent bond.................	1,000 00
14,	E. H. Bailey, cashier, purchase of 3 Minn. 4½ per cent bonds...................	3,000 00
14,	Chas. Kittelson, treasurer, ex chgs on bonds sent to N. Y. and returned...........	565 00
26,	A. Palm, treas. Meeker county, refunded on canceled sale...................... ...	77 25
March 1,	E. H. Bailey, cashier, purchase of 6 Minn. 4½ per cent bonds..................	6,000 00
3,	E. H. Bailey, purchase of 1 Minn. 4½ per cent bond	1,000 00
7,	Chas. Kittelson, purchase of 7 Minn. 4½ per cent bonds.........................	7,000 00

Mar,	10,	1st Nat. Bank, St. Paul, purchase of 2 Minn. 4½ per cent bonds	$2,000 00	
	14,	E. H. Bailey, cashier, purchase of 17 Minn. 4½ per cent bonds	17,000 00	
	16,	1st Nat. Bank, St. Paul, purchase of 2 Minn. 4½ per cent bonds	2,000 00	
	17,	1st Nat. Bank, St. Paul, purchase of 1 Minn. 4½ per cent bond.	1,000 00	
	17,	E. R. Perkins. purchase of 50 Minn. 4½ per cent bonds	50,000 00	
	27,	1st Nat. Bank, St. Paul, purchase of 1 Minn. 4½ per cent bond	1,000 00	
	30,	1st Nat. Bank, St. Paul, purchase of 1 Minn. 4½ per cent bond	1 000 00	
April	21,	1st Nat Bank, St. Paul, purchase of 7 Minn. 4½ per cent bonds	7,000 00	
May	4,	Walter Mann, purchase of 17 Minn. 4½ per cent bonds	17,000 00	
	6,	1st Nat. Bank. St. Paul, purchase of 2 Minn. 4½ per cent bonds	2,000 00	
	19,	W. W. Griswold, refunded on canceled sale Stevens county	73 38	
	21,	Samuel Horton, purchase of 7 Minn. 4½ per cent bonds	7,000 00	
June	27,	E. H. Bailey, purchase of 11 Minn. 4½ per cent bonds	11.000 00	
	27,	E. H. Bailey, cashier, purchase of 2 Minn. 4½ per cent bonds	2,000 00	
July	1,	H. M. Knox, purchase of 1 Minn. 4½ per per cent bond	1,000 00	
	3,	E. H. Bailey, cashier, purchase of 1 Minnesota 4½ per cent. bond	1,000 00	
	5,	H. M. Knox, purchase of 2 Minnesota 4½ per cent. bonds	2,000 00	
	11,	C. H. Berry, purchase of 1 Minnesota 4½ per cent. bond	1,000 00	
Aug.	4,	Louise A. Woodbury, purchase of 1 Minn. 4½ per cent bond	1,000 00	
	4,	First National Bank, St. Paul, purchase of 1 Minn. 4½ per cent bond	1,000 00	
	5,	Charles Kittelson, treasurer, purchase of 5 Minn. 4½ per cent bonds	5,000 00	
	14.	Chas. Kittelson, treasurer, purchase of 46 Minn. 4½ per cent bonds	46,000 00	
	14,	Charles Kittelson, treasurer, purchase of 200 Minn. 4½ per cent bonds	200,000 00	
	18,	Henry M. Knox, purchase of 2 Minn. 4½ per cent bonds	2,000 00	
	28,	E. S. Edgerton, purchase of 7 Minn. 4½ per cent bonds	7,000 00	
Sept.	8,	Henry Chaffee, purchase of 1 Minn. 4½ per cent bond	1,000 00	
	8,	First National Bank, St. Paul, purchase of 1 Minn. 4½ per cent bond	1,000 00	
	16,	Henry M. Knox, purchase of 1 Minn. 4½ per cent bond	1,000 00	
	30,	Merchants National Bank, St. Paul, purchase of 1 Minn. 4½ per cent bond	1,000 00	
Oct.	2,	First National Bank. St. Paul, purchase of 1 Minn. 4½ per cent. bond	1,000 00	
	17,	Julia B. Oakes, purchase of 5 Minn. 4½ per cent bonds	5,000 00	
				$1,093,715 63

GENERAL SCHOOL FUND.

1882.				
Jan.	26,	A. Palm, Treasurer Meeker county, refunded on canceled sale	$18 02	
March	9,	Chas. Kittelson, State Treas., March apportionment to the several counties	58,501 74	
	14,	First National Bank, St. Paul, accrued interest on 17 Minnesota 4½ per cent. bonds	157 25	
	14,	Chas. Kittelson, Treasurer, accrued interest on 7 Minnesota 4½ per cent. bonds	57 05	
May	4,	Walter Mann, accrued interest on 17 Minnesota 4½ per cent. bonds	70 83	
	19,	W. W. Griswold, refunded on canceled sale, Stevens county	58 95	
	21,	Samuel Horton, accrued interest on 7 Minnesota 4½ per cent. bonds	149 43	
June	27,	E. H. Bailey, cashier, accrued interest on 11 Minnesota 4½ per cent. bonds	237 12	
July	3,	E. H. Bailey, cashier, accrued interest on one Minnesota 4½ per cent. bond	22 50	
Aug.	4,	Louise A. Woodbury, accrued interest on one Minnesota 4½ per cent. bond	26 25	
	5,	Chas. Kittelson, Treasurer, accrued interest and prem. on 5 Minn. 4½ per cent. bonds.	71 87	
	14,	Chas. Kittelson, Treas., accrued interest and exchange on 46 Minn. 4½ per cent. bonds.	316 58	
	14,	Chas. Kittelson, Treas., accrued interest and exchange on 200 Minn. 4½ per cent. bonds	1,376 40	
	18,	Henry M. Knox, accrued interest on 2 Minnesota 4½ per cent. bonds	12 00	
	24,	Chas. Kittelson, expenses conveying bonds from Cleveland to St. Paul	38 50	
	28,	E. S. Edgerton, accrued interest on 7 Minnesota 4½ per cent. bonds	191 62	
Sept.	8,	Henry Chaffee, accrued interest on one Minnesota 4½ per cent. bond	31 00	
	16,	Henry M. Knox, accrued interest on one Minnesota 4½ per cent. bond	9 37	
	30,	Merchants' National Bank, St. Paul, accrued int. on one Minn. 4½ per cent. bond	33 75	
Oct.	3,	Chas. Kittelson, State Treas., October apportionment to the several counties	208,413 27	
	17,	Julia B. Oakes, accrued interest on 5 Minnesota 4½ per cent. bonds	65 63	
	20,	Chas. Kittelson, supplemental apportionment to Lac qui Parle county	167 31	
	25,	E. S. Edgerton, balance interest on bonds purchased August 28	2 63	
				$270,029 07

PERMANENT UNIVERSITY FUND.

1881.			
Dec.	31,	W. R. Merriam, cashier, purchase of 13 Minn. 4½ per cent. bonds	$13,000 00
	31,	First Nat. Bank, St. Paul, purchase of 61 Minn. 4½ per cent. bonds	61,000 00
	31,	H. Greve, purchase of 69 Minn. 4½ per cent bonds	69,000 00
1882.			
Jan.	6,	E. H. Bailey, purchase of 24 Minn. 4½ per cent. bonds	24,000 00
	11,	Coalman Boyd, purchase of 1 Minn. 4½ per cent. bond	1,000 00

Jan. 11,	E. H. Baily, cashier, purchase of 10 Minn. 4½ per cent. bonds	$10,000 00	
12,	John M. Gilman, purchase of 8 Minn. 4½ per cent bonds	8,000 00	
12,	German-American Bank, St. Paul, purchase of 17 Minn. 4½ per cent. bonds	17,000 00	
14,	E. H. Bailey, cashier, purchase of 25 Minn. 4½ per cent bonds	25,000 00	
23,	J. R. Walsh, purchase of 10 Minn. 4½ per cent. bonds	10,000 00	
23,	First Nat. Bank, St, Paul, purchase of 3 Minn. 4½ per cent. bonds	3,000 00	
April 29,	A. McElrath, rufunded on canceled sale	30 00	
			$241,030 00

GENERAL UNIVERSITY FUND.

1882.			
Jan. 27,	R. A. Davison, Treasurer, order of board	$5,000 00	
Feb. 25,	R. A. Davison, Treasurer, order of board	5,000 00	
Mar. 30,	R. A. Davison, Treasurer, order of board	4,500 00	
Apr. 29,	Archibald McElrath, refunded on canceled sale	12 72	
May 4,	R. A. Davison, Treasurer, account expenses April	5,000 00	
16,	J. W. Bass, order of board	10,000 00	
31,	R. A. Davison, Treasurer, order of board, expenses May	4,500 00	
June 7,	R. A. Davison, Treasurer, account expenses, order of board	4,500 00	
July 3,	R. A. Davison, Treasurer, account expenses June	3,000 00	
Sept. 28,	R. A. Davison, Treasurer, expenses July, August and September	8,273 90	
Nov. 4,	R. A. Davison, Treasurer, expenses October	4,107 51	
			$53,894 13

INTERNAL IMPROVEMENT LAND FUND.

1881.		
Dec. 31,	First National Bank, St. Paul, purchase of 322 Minnesota 4½ per cent. bonds	$322,000 00

INTEREST FUND.

1882.			
Mar. 7,	Chas. Kettelson, State Treasurer, interest on school text book warrants	$412 62	
April 6,	Chas. Kittelson, State Treasurer, 190 coupons, Minnesota bonds redeemed	6,225 00	
May 22,	Chas. Kittelson, State Treasurer, 33 coupons, Minnesota bonds redeemed	870 30	
June 27,	Chas. Kittelson, Treasurer, interest to July 1, 1882, on school text books	192 38	
Oct. 20,	Chas. Kittelson, Treasurer, coupons redeemed on $40,000 bonds	184 16	
20,	Chas. Kittelson, Treasurer, 135 coupons Minnesota bonds redeemed	4,365 00	
Nov. 29,	Chas. Kittelson, Treasurer, 9 coupons Minnesota bonds redeemed	245 85	
			$12,495 31

SINKING FUND.

1882.		
May 20,	Chas. Kittelson, State Treasurer, redemption of 13 bonds, loan 1878, seed grain	$13,000 00
22,	Chas. Kittelson, redemption of 42 Minnesota bonds, loan of 1873	42,000 00

Oct.	20,	Chas. Kittelson, redemption of 33 bonds, loan of 1873	$33,000 00	
	20,	Chas. Kittelson, redemption of 7 bonds, loan of 1878, seed grain	7,000 00	
Nov.	29,	Chas. Kittelson, redemption of 5 Minn. 7 per cent of 1873 issue	5,000 00	
	29,	Chas. Kittelson, redemption of 4 Minn. 6 per cent. issue of 1878, seed grain	4,000 00	
				$104,000 00

ATTORNEY, TWELFTH DISTRICT.

1882.				
Feb.	16,	J. W. Arctander, on account salary, 1881	$515 86	
Apr.	11,	J. W. Arctander, on account salary	367 67	
	24,	J. W. Arctander, on account salary	295 50	
	29,	J. W. Arctander, on account salary	1 00	
July	12,	J. W. Arctander, on account salary	359 25	
Aug.	7,	J. W. Arctander, on account salary	118 25	
Sept.	29,	J. W. Arctander, on account salary	43 50	
Oct.	17,	J. W. Arctander, on account salary	500 00	
				$2,201 03

SCHOOL TEXT BOOK FUND.

1881.				
Dec.	31,	D. D. Merrill, books furnished sundry counties,	$1,132 07	
1882.				
Jan.	21,	D. D. Merrill, books furnished sundry counties.	298 05	
Feb.	2,	D. D. Merrill, books furnished sundry counties.	738 12	
Mar.	3,	D. D. Merrill, books furnished sundry counties.	192 76	
	17,	D. D. Merrill, books furnished sundry counties.	122 50	
	22,	D. D. Merrill, books furnished sundry counties.	457 26	
	23,	D. D. Merrill, books furnished sundry counties.	203 21	
	27,	D. D. Merrill, books furnished sundry counties.	540 46	
April	4,	D. D. Merrill, books furnished sundry counties.	982 89	
	14.	D. D. Merrill, books furnished sundry counties,	635 63	
	18,	D. D. Merrill, books furnished sundry counties.	676 96	
	28,	D. D. Merrill, books furnished sundry counties.	102 94	
May	5,	D. D. Merrill, books furnished sundry counties.	1,556 48	
	20.	D. D. Merrill, books furnished sundry counties.	570 38	
	22,	D. D. Merrill, books furnished sundry counties,	904 10	
	27,	D. D. Merrill, books furnished sundry counties.	1,225 20	
	31,	D. D. Merrill, books furnished sundry counties.	1,051 41	
June	9,	D. D. Merrill, books furnished sundry counties.	181 98	
	16,	D. D. Merrill, books furnished sundry counties.	356 29	
	24,	D. D. Merrill, books furnished sundry counties.	98 70	
July	13,	D. D. Merrill, books furnished sundry counties.	103 40	
Aug.	2,	D. D. Merrill, books furnished sundry counties.	82 95	
	15,	D. D. Merrill, books furnished sundry counties.	88 36	
Sept.	5,	D. D. Merrill, books furnished sundry counties.	112 45	
	18,	D. D. Merrill, books furnished sundry counties.	241 71	
	25,	D. D. Merrill, books furnished sundry counties	147 00	
Oct.	5,	D. D. Merrill, books furnished sundry counties	218 73	
	14,	D. D. Merrill, books furnished sundry counties	261 99	
	18,	D. D. Merrill, books furnished sundry counties	189 59	
	20,	D. D. Merrill, books furnished sundry counties	216 71	
	30,	D. D. Merrill, books furnished sundry counties	103 89	
Nov.	2,	D. D. Merrill, books furnished sundry counties	164 58	
	10,	D. D. Merrill, books furnished sundry counties	154 95	
	21,	D. D. Merrill, books furnished sundry counties	217 57	
	28,	D. D. Merrill, books furnished sundry counties	269 67	
				$14,600 94

STATEMENT "T."

Indebtedness of Counties, Cities, Towns and School Districts, as reported by County Auditors.

COUNTIES.	COUNTY.		TOWN AND CITY.		SCHOOL DISTRICT.		Total.
	Bonded.	Floating.	Bonded.	Floating.	Bonded.	Floating.	
Aitkin	$ 5 200 00	$ 3,147 00					$ 8,347 00
Anoka	20,000 00		$ 2,000	$ 600 00	$11.170 00	$1,057 00	34,827 00
Benton	20,000 00		15,000		200 00		35,200 00
Big Stone		9,000 00		1,469 00	27,580 00	2,408 00	40,457 00
Blue Earth	22,952 00		133,000		32,000 00	6,200 00	194,152 00
Brown	30,000 00						30,000 00
Carlton		7,860 00			4,400 00		12,260 00
Carver	50 00		800		1,000 00		1,850 00
Cass	13,000 00						13.000 00
Chisago			38,900				38,900 00
Cottonwood				500 00	8,000 00		8,500 00
Crow Wing	45,000 00	3,201 00			2,500 00	775 00	51,476 00
Douglas			650		25,200 00		25,850 00
Faribault			10,720		14,035 00		24,755 00
Fillmore			126,000				126,000 00
Hennepin		19,000 00	1,575,200	950 00	57,000 00	3,425 00	1,655,575 00
Isanti	2,000 00			250 00	750 00		3,000 00
Jackson	5,000 00	1,984 00	1,020	500 00	7.350 00	800 00	16,654 00
Kanabec		1,664 37			500 00		2,164 37
Kandiyohi			2,000	1,000 00	15,000 00	2,000 00	20,000 00
Kittson		5,277 00					5,277 00
Lake							
Le Sueur	5,000 00	6,000 00	42,000	3,200 00	20,000 00	2,600 00	78,800 00
Lincoln		9,470 23					9,470 23
McLeod			4,000	1,500 00	6,950 00	2,000 00	14,450 00
Mille Lacs						540 00	540 00
Morrison	35,000 00				5,000 00	2,000 00	42,000 00
Murray	9,000 00	150 00					9,150 00
Nobles	29,860 00		23,300		14,669 00		67,829 00
Norman	10,000 00		2,500	445 00	12,400 00	1,548 00	26,893 00
Otter Tail	206,000 00	1,607 28	31,000	3,063 00	57,257 75	2,118 96	301,046 99
Pine	18,226 00	1,838 00					20,064 00
Polk	44,241 00	39,725 00					83,966 00
Redwood	50,000 00		10,000				60,000 00
Renville	15,000 00		5,500		8,900 00		29,400 00
Rice	45,000 00		60,000		50,000 00		155.000 00
Rock	55,775 22	800 00	1,200		23,013 00		80,788 22
St. Louis	92,320 00	1,508 52	175,379		20,000 00		289,207 52
Scott	5,000 00	5,000 00	40,000		11,000 00		61.000 00
Sherburne							
Sibley	8,000 00		20,000		2,200 00		30,200 00
Stearns			76,000	3,500 00	33,300 00		112,800 00
Steele		1,000 00					1,000 00
Stevens	5,500 00	4,988 55	2,000	15,353 34			27,841 89
Swift	9,000 00	1,000 00	8,000	1,000 00	27,000 00	2,000 00	48,000 00
Todd	60,800 00	2,000 00			8,434 00		71,234 00
Traverse		2,000 00		2,000 00	10,000 00	2,000 00	16,000 00
Wabasha			10,000				10,000 00
Wadena		4,000 00			5,475 00		9,475 00
Waseca	4,000 00		44,000		20,800 00	2,194 00	70,994 00
Washington		2,500 00	290,960		67,500 00	3,000 00	363,960 00
Watonwan		1,000 00		500 00	3,000 00	500 00	5,000 00
Winona		18,000 00	156,500				174,500 00
Wright	25,000 00	500 00	15,000	500 00	13,000 00	250 00	54,250 00
Y. Medicine	5,600 00	8,000 00	2,500	500 00	16,000 00	500 00	33,100 00
Totals	$901,524 22	$162,220 95	$2,925,129	$36,830 34	$642.583 75	$37,915 96	$4,706,204 42

STATEMENT "U"

Resources of the State and Savings Banks of Minnesota, October 2, 1882.

	LOCATION.	NAME OF BANK.	Loans and Discounts.	Over Drafts.	U. S. Bonds.	Other Stocks and Bonds.	Due from Banks.	Real Estate.	Other Assets.	Expenses.	Cash items.	Specie	Legal tend's, bank notes, &c.	Totals.
	Anoka	State Bank of Anoka	$127.165	....	....	$813	$ 42,569	....	$1,971	$1,005	$120	$2,518	$11,324	$187,485
2	Duluth	American Exchange Bank	309,538	$696	....	....	215,865	$ 8,613	1,495	3,500	97	3,649	58,087	601,540
3	Farmington	Bank of Farmington	64,454	1,281	....	....	7,472	13,523	2,175	1,829	740	561	3,805	95,840
4	Hastings	German American Bank	60,739	12	....	....	14,406	....	1,384	1,573	....	443	5,139	83,696
5	"	Farmers' and Traders' Bank	26,960	2,274	....	....	59,092	....	3,000	....	1,067	4,407	8,568	105,368
6	Lake City	Lake City Bank	160,250	644	....	....	11,854	10.878	1,712	1,800	2,966	9,067	4,717	203.888
7	Litchfield	Meeker County Bank	85,378	689	....	....	6,366	9,342	1,790	674	278	3,680	9,351	117,548
8	Luverne	Rock County Bank	32,038	638	....	....	11,214	2,879	1.146	1,007	645	316	3,040	52,923
9	Minneapolis	City Bank	723,853	8,223	....	....	107,332	3,640	3,575	6,718	....	....	95,475	948,816
10	"	Citizen's Bank	104,124	670	....	....	29,149	9,544	1,243	4,586	7,697	700	9,930	167,643
11	"	Hennepin County Savings Bank	648,893	....	....	....	77,473	7,096	3,352	2,358	....	....	71,541	810,713
12	"	Security Bank	3,274,865	13,054	$22,200	11,716	412,930	....	60,348	7,711	....	....	363,785	4,166,609
13	Morris	Stevens County Bank	26,271	42	....	....	7,444	5,285	938	1,630	851	2,596	2,460	47,517
14	Northfield	Citizens' Bank	115,636	811	....	....	12,488	....	4,060	922	106	1,811	6,643	142.477
15	Pelican Rapids	Bank of Pelican Rapids	34,423	....	....	621	5,499	600	1,078	1,013	20	632	3,675	47,561
16	Red Wing	Goodhue County Savings Bank	66,092	....	....	....	....	1,656	4,300	....	....	....	4,890	76,938
17	St. Paul	Capital Bank	148.790	....	....	110,819	68,052	....	2,500	1,176	15,627	20,084	62,176	429,224
18	"	German American Bank	1,206,629	4,524	66,126	....	136,791	36,342	....	4,231	....	....	137.496	1,592,139
19	"	Savings Bank of St. Paul	242,671	....	....	10,180	2,713	3,813	2,359	864	....	....	17,857	280,457
20	St. Cloud	Bank of St. Cloud	104,808	1,500	....	35,632	42,934	6,000	1,000	3,771	1,736	350	9,500	207.231
21	Shakopee	Bank of Shakopee	136,057	....	....	125	3,677	6,538	....	1,268	97	1,661	9,400	158,823
22	Stillwater	Stillwater Savings Bank	6,592	....	....	....	23,618	....	583	....	....	....	....	30,793
23	Wabasha	Bank of Wabasha	79,673	115	....	....	19,879	....	3,221	578	21	4,366	14,216	122,069
24	Waseca	Waseca County Bank	44,984	....	....	....	3,359	9,000	1,476	2,096	....	....	4,986	65,901
25	Willmar	Kandiyohi County Bank	131,639	2,182	....	....	10,586	7,992	....	....	607	1,721	7,348	162,075
26	Winona	Merchants' Bank	121,711	1,631	....	....	12,080	5,000	1,500	1,030	229	4,259	8,047	155,507
27	Zumbrota	Bank of Zumbrota	85,359	3,759	....	....	36,534	5,294	1,497	284	....	10,480	11,016	154,223
		Totals	$8,169,592	$42,765	$88,326	$169 906	$1,381,376	$153,035	$107,703	$51,624	$32,904	$73,301	$944,472	$11,215,004

STATEMENT "U."—Concluded.

Liabilities of the State and Savings Banks of Minnesota.

	LOCATION AND NAME OF BANK.		Capital Stock.	Surplus Fund.	Undivided Profits.	Dividends Unpaid.	Deposits.	Due to Banks.	Other Liabilities.	Totals.
1	Anoka	State Bank of Anoka	$31.250	....	$6,000	....	$150,215	....	$ 20	$ 187,485
2	Duluth	American Exchange Bank	100.000	....	28,543	....	469.488	$3,509	....	601,540
3	Farmington	Bank of Farmington	25.000	$5,000	2,805	....	61,310	1,725	....	95,840
4	Hastings	German American Bank	25,000	....	1,372	....	57,288	36	....	83,696
5	Hastings	Farmers & Traders Bank	25,000	....	213	....	80,155	....	....	105,368
6	Lake City	Lake City Bank	50,000	....	8,289	....	131,278	321	14,000	203.888
7	Litchfield	Meeker County Bank	25,000	....	3,399	....	70.149	....	19,000	117.548
8	Luverne	Rock County Bank	25,000	....	2,477	....	18,245	1,845	5,356	52,923
9	Minneapolis	City Bank	200,000	16,000	14,124	750	717,942	....	....	948.816
10	Minneapolis	Citizens Bank	40,000	....	4,072	....	123,571	....	....	167,643
11	Minneapolis	Hennepin Co. Savings B'k	99.500	11,940	13,078	....	656,195	....	30,000	810,713
12	Minneapolis	Security Bank	1,000.000	....	194.662	545	2,971,402	....	....	4,166,60[illegible]
13	Morris	Stevens County Bank	25,000	....	1,791	....	20,726	....	....	47,517
14	Northfield	Citizens Bank	50,000	....	17,059	....	71,578	3,840	....	142,477
15	Pelican Rapids	Bank of Pellcan Rapids	25,000	....	1,282	....	18,653	....	2,626	47,561
16	Red Wing	Goodhue Co. Savings Bank	....	5,792	.... ..	....	71,146	....	....	76,938
17	St. Paul	Capital Bank	100.000	15,000	6,640	....	212,931	81,653	13,000	429,224
18	St. Paul	German American Bank	300,000	75,000	35.401	84	1,140,992	40,662	....	1,592,139
19	St. Paul	Savings Bank of St. Paul	50,000	....	2,450	....	222.340	....	5,667	280.457
20	St. Cloud	Bank of Saint Cloud	50,000	....	12,248	....	144.983	....	....	207,231
21	Shakopee	Bank of Shakopee	50,000	... .	2,834	....	93.952	3,583	8,454	158,823
22	Stillwater	Stillwater Savings Bank	....	....	.... ..	....	30 793	....	...	30,793
23	Wabasha	Bank of Wabasha	25,000	....	2,502	....	92,484	12	2,071	122,06[illegible]
24	Waseca	Waseca County Bank	25,000	... .	2,821	....	88,080	....	....	65,901
25	Willmar	Kandiyohi County Bank	50,000	25.000	6,479	....	70,596	10,000	....	162.075
26	Winona	Merchants bank	30 000	5,000	3.967	....	115,811	664	65	155.507
27	Zumbrota	Bank of Zumbrota	32,500	.....	12,452	....	109,271	....	....	154.223
		Totals	$2,458,250	$158.723	$386,960	$1,379	$7.961,574	$147,850	$100,259	$11,215,004

SUMMARY.	
Resources.	
Loans & discounts	$8,169.592
Overdrafts	42.765
U. S. Bonds	82,326
Other stocks, bonds etc	169,906
Due from Banks	1,381,376
Real Estate	153,035
Other assets	107,703
Expenses	51,624
Cash items	32,904
Specie	73,301
Legal tenders, Bank notes, etc	944,472
Total	11,215,004
Liabilities.	
Capital Stock	$2,458,250
Surplus Fund	158.732
Undivided profits	386.960
Dividends unpaid	1,379
Deposits	7,961,574
Due to Banks	147.850
Other liabilities	100,259
Total	11,215,004

STATEMENT "V."

Towns organized and reported to this office from November 30, 1880, to November 30, 1882, under the provisions of chapter 10 of the General Statutes.

TOWN.	COUNTY.	ORGANIZED.
Alma	Marshall	April 4, 1882.
Alliance	Clay	July 24, 1882.
Arthur	Traverse	April 2, 1881.
Bear Park	Polk	December —, 1881.
Black River	Polk	April 18, 1881.
Bloomer	Marshall	February 27, 1882.
Brandrup	Wilkin	July 27, 1881.
Breitung	St. Louis	April 1, 1882.
Carlisle	Otter Tail	February 23, 1881.
Carsonville	Becker	July 25, 1881.
Comstock	Marshall	——— —, 1881.
Coon	Marshall	February 27, 1882.
Croke	Traverse	July 26, 1881.
Davis	Kittson	July 24, 1882.
Doleysmount	Traverse	September 20, 1881.
Edna	Otter Tail	May 2, 1882.
Elkton	Clay	May 2, 1882.
Elmdale	Morrison	March 22, 1881.
Fawn Lake	Todd	July 28, 1881.
Felton	Clay	February 24, 1882.
Folden	Otter Tail	February 23, 1881.
Fortier	Yellow Medicine	May 12, 1881.
Garden	Polk	——— —, 1882.
Gervais	Polk	——— —, 1882.
Girard	Otter Tail	March 21, 1882.
Grand Forks	Polk	——— —, 1882.
Hegne	Polk	April 19, 1881.
Higdem	Polk	December —, 1881.
Home Lake	Polk	April 18, 1881.
Homestead	Otter Tail	July —, 1882.
Humboldt	Clay	July 24, 1882.
Iona	Todd	January 7, 1881.
Keystone	Polk	——— —, 1882.
Kittson	Polk	——— —, 1882.
Kretchmarville	Polk	December —, 1881.
Lambert	Polk	——— —, 1882.
Leonardsville	Traverse	April 2, 1881.
Lockhart	Norman	May 30, 1882.
McCrea	Marshall	April 5, 1882.
Mahtowa	Carlton	March 28, 1882.
Maplewood	Otter Tail	May 2, 1882.
Mitchell	Wilkin	July 27, 1881.
Monsen	Traverse	October 15, 1881.
Moorville	Crow Wing	June 2, 1882.
Morrill	Morrison	July 25, 1882.
North Ottawa	Grant	——— —, 1882.
Oak Park	Marshall	October 10, 1882,
Paddock	Otter Tail	March 21, 1882.
Parnell	Traverse	April 2, 1881.
Redpath	Traverse	July 26. 1881.
Red River	Kittson	January 5, 1881.
River Falls	Polk	——— —, 1882.
Riverton	Clay	February 24, 1882.
Rockwell	Norman	September 26, 1882.
Sanford	Grant	July —, 1882.
See	Norman	April 10, 1882.
Sinnatt	Marshall	July 24, 1882.
Skree	Clay	March 8, 1881.
Staples	Todd	January 5, 1882.
Tarrah	Traverse	April 2, 1881.
Taylor	Traverse	October 15, 1881.
Tegner	Kittson	July 24, 1882.
Telen	Kittson	April 5, 1882.
Tilden	Polk	——— —, 1882.
Tintah	Traverse	July 26, 1881.
Ulm	Clay	June 7, 1881.
Villard	Todd	July 28, 1882.
Walls	Traverse	April 2, 1881.
Walworth	Becker	January 3. 1882.
Wanger	Marshall	April 4. 1882.
Wild Rice	Polk	March 20. 1881.
Windsor	Traverse	July 26, 1881.
Windemere	Pine	January 3, 1882.

STATEMENT "W."

Proceedings of the State Board of Equalization for 1881.

STATE OF MINNESOTA,
ST. PAUL, Sept. 6, 1881.

The State Board of Equalization convened at the Governor's office, pursuant to law, at 10 o'clock a. m.

The following are the names of the members of the Board:

R. Lehmicke, 1st District.
William Dawson, 2d District.
J. G. Lawrence, 3d District.
Daniel Bassett, 4th District.
Z. B. Page, 5th District.
George C. Chamberlin, 6th District.
James Compton, 7th District.
Martin Tousley, 8th District.
Thomas Montgomery, 9th District.
E. W. Trask, 10th District.
A. N. Seip, 11th District.
H. S. Sjoberg, 12th District.

MEMBERS EX OFFICIO.

J. S. Pillsbury, Governor and President.
O. P. Whitcomb, Auditor of State and Secretary.
W. J. Hahn, Attorney General.

The following communication from the Governor relative to appointment of members was received and placed on file:

STATE OF MINNESOTA,
EXECUTIVE DEPARTMENT,
ST. PAUL, Sept. 5, 1881.

Hon. O. P. Whitcomb, Auditor of State:

DEAR SIR—I have appointed the following gentlemen members of the State Board o Equalization:

Hon. William Dawson, 2d Judicial District.
Hon. Daniel Bassett, 4th Judicial District.
Hon. Z. B. Page, 5th Judicial District.
Hon. George Chamberlin, 6th Judicial District.
Hon Martin Tousley, 8th Judicial District.
Hon. Thomas Montgomery, 9th Judicial District.
Hon. E. W. Trask, 10th Judicial District.
Hon. H. S. Sjoberg, 12th Judicial District.

Very Respectfully,
J. S. PILLSBURY,
Governor.

The roll being called the following named members were present: Messrs. Bassett, Dawson, Compton, Hahn, Lehmicke, Page, Sjoberg, Trask, Pillsbury, Whitcomb.

The members present having taken and subscribed the oath of office, on motion William Dawson was elected President pro tem of the board. The abstracts of assessment of the different counties of the State were laid before the board, and on motion it adjourned to Wednesday at 10 o'clock a. m.

St. Paul, Sept. 7th, 1881.

Board met pursuant to adjournment at 10 o'clock a. m. A. N. Seip, J. G. Lawrence and T. Montgomery appeared and took the oath of office. Members present, J. S. Pillsbury, Gov.; William Dawson, H. S. Sjoberg, Z. B. Page, A. N. Seip, James Compton, D. Bassett, T. Montgomery, E. W. Trask, O. P. Whitcomb, W. J. Hahn.

Minutes of 6th inst. read and approved. On motion board resolved itself into committee of the whole for consideration of the returns from the different counties. At 12 o'clock m., the committee arose and the board took a recess until 2 o'clock p. m.

AFTERNOON SESSION.

Board re-assembled at 2 o'clock p. m., the following members being present: Messrs. Bassett, Compton, Dawson, Hahn, Lawrence, Lehmicke, Montgomery, Page, Seip, Sjoberg, Trask, Whitcomb, Pillsbury. Work in committee of the whole was resumed and continued during the session. Board adjourned to meet at 10 o'clock a. m. Sept. 8.

St. Paul, Sept. 8, 1881.

Board met pursuant to adjournment at 10 o'clock a. m.. the following named members being present: Messrs. Bassett, Compton, Dawson, Hahn, Lawrence, Lehmicke, Montgomery, Page, Seip, Sjoberg, Trask, Whitcomb, Pillsbury. On motion the board went into committee of the whole. At noon the committee arose and the board took a recess until 2 o'clock p. m.

AFTERNOON SESSION.

Board convened at 2 o'clock p. m., the following members being present: Messrs. Bassett, Compton, Dawson, Hahn, Lawrence, Lehmicke, Montgomery, Page, Seip, Sjoberg, Trask, Whitcomb, Pillsbury. Work in committee of the whole was continued. On motion the board adjourned to meet Sept. 9, at 10 o'clock a. m.

St. Paul, Sept. 9, 1881.

Board met pursuant to adjournment at 10 o'clock a m. Members present: Messrs. Bassett, Chamberlin, Compton, Dawson, Hahn, Lawrence, Lehmicke, Montgomery, Page, Seip, Sjoberg, Trask, Whitcomb. Mr. Chamberlin appeared and took the oath of office. On motion board adjourned to Saturday, Sept. 10, at 10 o'clock a. m.

St. Paul, Sept. 10, 1881.

Board met at 10 o'clock a. m. pursuant to adjournment, and the committee on mileage submitted the following report as the number of miles traveled by the members of the board, viz:

Bassett, D., 20 miles; Chamberlin, G. C., 160 miles; Compton, J., 374 miles; Lawrence, J. G., 144 miles; Lehmicke, R., 40 miles; Montgomery, T., 150 miles; Page, Z. B., 200 miles; Seip, A. N., 310 miles; Sjoberg, H. S., 236 miles; Trask, E. W., 326 miles.

Respectfully submitted.

A. N. SEIP,
H. S. SJOBERG, } Committee.
E. W. TRASK,

On motion board adjourned to meet Sept. 12th at 2 o'clock p. m.

St. Paul, Sept. 12, 1881.

Board met pursuant to adjournment at 2 o'clock p. m. Members present: Messrs. Bassett, Chamberlin, Compton, Dawson, Lawrence, Lehmicke, Montgomery, Page, Seip, Sjoberg, Trask, Whitcomb. On motion board adjourned to Tuesday, Sept. 13, at 9 o'clock a. m.

St. Paul, Sept. 13, 1881.

Board met pursuant to adjournment, the following members being present: Messrs. Bassett, Chamberlin, Compton, Dawson, Hahn, Lawrence, Lehmicke, Montgomery. Page, Seip, Sjoberg, Trask, Whitcomb, Pillsbury. Work was resumed in committee of the whole, and after a time the committee arose and made the following report:

COUNTIES.	1. HORSES.			2. CATTLE.				3.	4.	5.	6.	7.	9.	10.	11.	12.	17.	18.
	One year old.	Two years old.	Three years old.	One year old.	Two years old.	Cows.	All other cattle.	Mules	Sheep.	Hogs.	W'gns and car-riages.	Sewing and knitti'g ma-chines	Melo-deons and Organs	Pianos.	House-hold & office furni-ture.	Agr'l tools and M'ch'ry	Goods and M'd'se.	Materi-als and M'n'f'd articles.
	Increase per cent.	Increase per cent.	Increase per cent	Increase per cent.	Increase per cent.	Increase per cent	Increase per cent.	Increase per cent.	Increase per cent.	Increase per cent	Increase per cent.	Increase per cent	Increase per cent.	Increase per cent.	Increase per cent.	Increase per cent.	Increase per cent.	Increase per cent.
Aitkin																		
Anoka	10	10	10	10	10		10	60						30		10		
Becker									20								10	
Benton	50	50	50	30	30	30	30	125	20	50	50	25	60	125	50	10	50	
Big Stone		10	10					20	20				15	30				
Blue Earth				10	10	10	30	25		55				10	10	30	30	
Brown	50	50	05	10	10	10	10	5		20	50	25	20			20		
Carlton								35						20			10	
Carver								5	20	20			20				60	
Cass																	10	
Chippewa								20		50			20	30				
Chisago				10	10	10	10	30	20	50			20				30	
Clay							*10	*05	20				10				10	
Cook																	25	
Cottonwood			10	*15	*15		*15	25		10				40	10		50	
Crow Wing								20										
Dakota		20	10			10	20	20		20				05	05	50		
Dodge		15	15	20	15	10	25	25	20	50			40	10	50	50	20	
Douglas	10	10	10	20	15	15		30	30	70			60					
Faribault							25	10								30		
Fillmore				20	10	05	30	20	20				20	10	5	50	15	
Freeborn								10		85			20		10	25	75	
Goodhue				25	25	10	70	05	20	45	25	10	30	10	50	40	10	
Grant				10		10		10	70	60		10	30	05				
Hennepin																	05	05
Houston	10	10	10	20	10	05	10	20					10	25	10	50	25	
Isanti				25	10	05	10	50	20						10			
Jackson	20	20	20			10	05	25	20	43	20		40	25	50	10	20	
Kanabec					20	20	*20	20	30							10		
Kandiyohi						10		10	20	40								
Kittson										*20								

Lac qui Parle	10	10	10	......	......	20	......	15	30	......	......	......	25	......	50	......	......	......
Lake	......	......	20	50	50	......	25	......	......	40	......	......	......	......	......	......	......	......
Le Sueur	......	......	......	......	......	......	......	10	25	50	......	......	30	......	25	25	50	......
Lincoln	15	......	15	......	......	05	......	05	20	......	......	......	......	30	20	......	......	......
Lyon	35	30	20	50	30	40	......	35	20	......	15	10	30	45	25	......	10	......
McLeod	......	20	......	50	50	15	20	45	......	50	25	......	30	......	40	......	......	......
Marshall	20	20	......	......	......	......	......	15	20	......	......	......	......	......	......	......	......	......
Martin	20	20	20	......	......	......	......	30	20	30	10	......	15	60	20	......	......	......
Meeker	10	10	25	20	20	20	......	50	40	75	30	10	10	......	25	......	......	......
Mille Lacs	25	40	25	80	40	30	10	100	50	25	25	......	......	......	......	......	......	......
Morrison	......	10	10	50	40	15	......	15	50	50	......	......	20	05	......	......	......	......
Mower	20	20	15	......	20	......	20	10	50	50	10	......	15	......	05	......	......	......
Murray	10	20	......	......	......	......	......	10	......	20	......	......	05	25	10	......	......	......
Nicollet	......	......	......	15	......	......	......	10	......	15	......	......	05	......	......	......	......	......
Nobles	10	15	25	50	30	20	10	30	20	35	50	30	70	40	......	......	......	......
Olmstead	......	......	......	......	......	......	30	10	......	20	......	......	......	......	......	......	......	......
Otter Tail	30	......	05	25	30	20	40	40	20	50	......	......	......	......	......	......	......	......
Pine	......	......	......	......	......	......	......	25	......	......	......	......	......	......	......	......	......	......
Pipe Stone	75	75	50	15	20	10	......	75	......	......	......	25	65	......	......	......	......	......
Polk	......	......	......	......	......	......	......	......	......	......	......	......	20	......	......	......	......	......
Pope	10	15	05	20	05	05	......	20	20	......	25	25	40	......	......	......	......	......
Ramsey	......	......	......	......	......	......	......	05	20	......	......	......	......	......	......	......	......	......
Redwood	10	15	10	......	......	......	......	25	......	50	......	......	40	60	20	......	......	......
Renville	40	20	......	20	20	25	20	20	20	50	40	......	......	25	50	......	......	......
Rice	......	20	......	......	......	......	30	05	20	55	......	10	20	......	......	......	......	......
Rock	100	100	50	40	25	15	20	50	40	25	50	90	30	60	25	......	......	......
St. Louis	100	......	......	......	......	......	......	200	20	......	......	......	60	......	......	......	......	......
Scott	......	......	......	50	15	05	20	......	20	55	......	......	15	10	10	......	......	......
Sherburne	10	20	......	50	25	10	20	......	20	150	......	25	15	......	......	......	......	......
Sibley	......	......	05	20	20	20	20	50	20	55	15	......	15	......	......	......	......	......
Stearns	30	20	05	50	25	30	20	40	70	55	......	......	30	......	......	......	......	......
Steele	15	15	15	......	......	05	25	20	......	50	......	......	15	10	20	......	......	......
Stevens	20	40	05	50	30	25	......	......	20	20	15	25	15	25	......	......	......	......
Swift	......	......	......	15	05	05	......	20	20	55	15	......	10	25	......	......	......	......
Todd	50	40	40	40	15	15	10	40	20	65	75	10	50	20	40	......	......	......
Traverse	70	......	......	10	......	......	......	......	......	*25	......	10	60	75	......	......	......	......
Wabasha	40	40	25	50	25	30	90	20	25	50	......	10	40	25	......	......	......	......
Wadena	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Waseca	......	......	......	......	10	10	......	10	......	50	10	25	10	......	50	......	......	......
Washington	......	......	......	20	......	......	......	10	......	......	......	......	......	......	......	......	......	......
Watonwan	......	......	10	......	......	......	......	20	20	20	25	......	......	......	......	......	......	......
Wilkin	......	......	......	......	......	......	......	*15	......	......	......	......	......	60	......	......	......	......
Winona	35	20	......	20	10	10	40	05	25	40	......	......	10	10	......	......	......	......
Wright	30	40	20	20	25	25	10	45	25	55	15	......	10	40	10	......	......	......
Y. Medicine	10	10	20	10	......	10	......	30	20	50	25	25	05	50	50	......	......	......

* Decrease.

Mr. Dawson moved to amend the report by excepting the counties of Ramsey and Hennepin, and the ayes and noes being called the vote was as follows: Ayes—Bassett, Dawson—2. Noes—Chamberlin, Compton, Hahn, Lawrence, Lehmicke, Montgomery, Page, Seip, Sjoberg, Trask and Whitcomb—11. So the motion was lost.

The followiing preamble and resolutions were adopted :

WHEREAS, Since our last meeting we have been called to mourn the death of Mr. George P. Johnson, a member of this board from the 5th District; therefore

Resolved, That we sincerely deplore the death of our late associate Mr. George P. Johnson, who, in the short period we were brought in contact with him as a member of this body, proved himself to be an estimable gentleman and a conscientious official, to whose worth both as a member of this board and as a citizen of the State we desire to thus publicly testify.

Resolved, That the secretary enter these resloutions upon the records of this board and transmit a copy thereof to the family of the deceased.

On motion the board adjourned *sine die*.

Attest: J. S. PILLSBURY,
President.

O. P. WHITCOMB,
Secretary.

Proceedings of the State Board of Equalization for 1882.

STATE OF MINNESOTA,
ST. PAUL, Sept. 5, 1882.

Pursuant to provisions of law the State Board of Equalization met at the Governor's rooms in the Market House, and were called to order at 11 o'clock a. m., Governor Hubbard in the chair.

The following communication relative to appointment of members was received by the secretary and placed on file:

STATE OF MINNESOTA,
EXECUTIVE DEPARTMENT,
St. Paul, Sept. 5, 1882.

Hon. W. W. Braden, Secretary State Board of Equalization:

DEAR SIR—I have the honor to report that the following named persons have been duly commissioned as members of the State Board of Equalization from the odd numbered districts:

S. W Furber, 1st District.
J. G. Lawrence, 3d District.
Z. B. Page, 5th District.
Jas. Compton, 7th District,
Thos. Montgomery, 9th District.
Hugh Thompson, 11th District.

And Jas. McNelly 10th District in place E. W. Trask, resigned.

Yours Respectfully,
L. F. HUBBARD,
Governor.

The roll was ordered called and the following members answered to their names and took the oath prescribed by law:

S. W. Furber, 1st District.
Wm. Dawson, 2d District.
D. Bassett, 4th District,
Z. B. Page, 5th District.
G. C. Chamberlain, 6th District.
J. Compton, 7th District.
T. Montgomery, 9th District.
J. McNelly, 10th District.
H. Thompson, 11th District.
W. W. Braden, Auditor of State and ex officio Secretary.
W. J. Hahn, Attorney General.
L. F. Hubbard, Governor.

The secretary reported abstracts of real and personal property assessments from all the counties in the State, except Aitkin, Grant, Kanabec and Pipestone. On motion the Board resolved itself into Committee of the Whole for the consideration of the valuation of personal property as returned by the several counties. On motion the Board took a recess until 2:30 o'clock p. m.

AFTERNOON SESSION.

Members present—Messrs. Bassett, Chamberlain, Compton, Dawson, Furber, Montgomery, Page, Thompson, McNelly, Hahn and Braden. On motion, Mr. Dawson was elected President *pro tem*. On motion, W. J. Hahn was excused from attendance during session of the Board. Consideration of personal property returns was then resumed in Committee of the Whole. On motion, Board adjourned to Wednesday September 6th. at 9 o'clok a. m.

September 6th, 1882.

Board met pursuant to adjournment at 9 o'clock a. m.; members present, Messrs. Bassett, Compton, Chamberlain, Dawson, Lawrence, Furber, Montgomery, Page, Thompson, Sjoberg, McNelly and Braden. Mr. Dawson, President *pro tem*. in the chair. Mr. Lawrence and Sjoberg subscribed to the oath prescribed by law. Reading of the minutes of the preceding day dispensed with. The Board, then in Committee of the Whole, resumed consideration of personal property valuations. On motion, committee took a recess until 2 o'clock p. m.

AFTERNOON SESSION.

Members all present except Messrs. Hubbard, Thompson and Tousley. Consideration of personal property assessment resumed in Committee of the Whole. At half-past five o'clock Board adjourned.

Thursday, September 7th, 1882.

No quorum present—adjourned to Friday, September 8th, at 9 o'clock a. m.

Friday, September 8th, 1882.

Board met pursuant to adjournment, Mr. Dawson in the chair. Quorum present; consideration of personal property assessment resumed in Committee of the Whole. At 12½ o'clock p. m. adjourned to Saturday, September 9th, at 9 o'clock a. m.

St. Paul, Minn., September 9th, 1882.

Board met pursuant to adjournment, President Dawson in the chair. Members all present except Messrs. Lawrence, Thompson, Tousley and Hubbard. Consideration of personal property assessment resumed. At 12 o'clock m. motion to take recess until 2 o'clock p. m. prevailed.

AFTERNOON SESSION.

Board met at 2 o'clock p. m., same members present as at morning session. Consideration of personal property assessments resumed. Adjourned to meet at 10 o'clock a. m. Monday, September 11th.

St. Paul, Minn., Monday, Sept. 11. 1882.

Board met pursuant to adjournment, President Dawson in the chair. Members all present except Messrs. Lawrence, Thompson, Tousley and Hubbard. Resumed consideration of personal property assessments in Committee of the Whole. At 12 o'clock m. Board took a recess until 2 o'clock p. m., at which hour committee met, same members being present as above. Personal property assessments still under consideration during the afternoon, and, on motion, at 6 o'clook p. m. adjourned until 9 o'clock a. m. September 12, 1882.

St. Paul, Minn., Tuesday, Sept. 12, 1882.

Board met pursuant to adjournment, President Dawson in the chair. Board all present except Mr. Tousley. Consideration of personal property assessments continued in Committee of the Whole.

AFTERNOON SESSION.

Consideration of real estate assessments was taken up in Committee of the Whole. Adjourned at 6 o'clock p. m. until 9 o'clock September 13th, 1882.

ST. PAUL, MINN., Wednesday, Sept. 13, 1882.

Board met pursuant to adjournment, President Dawson in the chair. Members all present except Mr. Tousley. Consideration of real property assessment resumed in Committee of the Whole. at 12 o'clock m. Board took a recess until 2 o'clock p. m.

AFTERNOON SESSION.

Board met pursuant to adjournment, President Dawson in the chair. Real estate assessment still under consideration in Committee of the Whole. All the members present except Mr. Tousley. Adjourned at 6 o'clock p. m. to Thursday at 9 o'clock a. m.

ST. PAUL, MINN., Thursday, Sept. 14, 1882.

Board met at 9 o'clock a m., pursuant to adjournment. President Dawson in the chair. Members of Board all present except Mr. Tousley. Consideration of real property assessment in Committee of the Whole continued. At 10 o'clock a. m. committee rose.

On motion, the valuation of Northwestern Telephone Co. was fixed at	$33.000
On motion, the valuation of Duluth Telephone Co. was fixed at.......	1,000
On motion, the valuation of Western Union Telegraph Co. was fixed at	200,000
On motion, the valuation of Mutual Union Telegraph Co. was fixed at	8.000
Currie & Tracy..	500

The rate of taxation of telegraph and telephone companies was fixed at fourteen mills.

The Secretary laid before the Board the following communication:

AUDITOR'S OFFICE, WASECA CO., MINN.,
July 21, 1882.

To the State Board of Equalization, St. Paul:

The undersigned commissioners and members of the Board of Equalization of Wasce county, now in session, would respectfully represent to your honorable body,

That the charter of the city of Waseca deprives us of any authority to equalize the assessment of said city.

That the Waseca County Bank has a capital stock of....	$25,000
That it is assessed for stock..................................	6,900
That it is assessed for real estate.............................	1,925
Total assessment being 35.3 per cent. of capital................	$8,825

That the Peoples Bank of Waseca has a capital stock of $25,000, assessed at $8,825, being 35.3 per cent. of capital stock shares.

That the foregoing are all the shares of bank stock assessed in this county, and we would recommend that the assessment of the same be raised by adding 100 per cent. thereto.

That there is but one banking firm in the city of Waseca, viz., C. Hardin & Sons, which is assessed for moneys of banks $8,736. That their statement does not show the names of the individual owners of the banking capital of the firm, nor the amount of the capital, nor that the statement has been sworn to.

That we are informed and believe that C. Hardin, a resident of the State of Illinois, is the owner of nearly all the capital of the firm, that for the purpose of evading taxation, a part of the capital of said C. Hardin is called a deposit and a large portion of the bills receivable of said banking firm are nominally transferred to said C. Hardin, though in fact held and controlled by the bank.

We would therefore recommend that the assessment of moneys of banks in the ity of Waseca be increased by adding 150 per cent thereto.

PHILIP PURCELL,
A. J. JORDAN,
A. M. NELSON, } Board of Equalization.
W. D. ARMSTRONG,
G. W. SOULE,

On motion the recommendations of the County Board of Equalization of Waseca county were adopted.

On motion the Board adopted the following resolution :

Resolved, That it is the opinion of this Board that the State Auditor should instruct ll County Auditors in the State to receive no returns from any assessment district as orrect, until every household or office in such district is assessed with furniture.

On motion of Mr. Compton the president appointed the following named gen-lemen as a committee on mileage: Messrs. Compton, McNelly and Thompson.

The committee on mileage reported as follows:

Bassett, D., 24 miles; Chamberlin, G. C., 400 miles; Compton, J., 374 miles; Furber, S. W. 32 miles; Lawrence, J. G., 144 miles; McNelly, J., 370 miles; Montgomery T., 150 miles; Page, Z. B., 200 miles; Sjoberg, H. S., 236 miles; Thompson, H., 676 miles.

Respectfully submitted.

JAMES COMPTON,
JOHN McNELLY, } Committee.
HUGH THOMPSON,

On motion, report of committee on mileage adopted.

On motion the action of the Committee of the Whole regarding personal property and real estate assessments was adopted.

The following statement shows the action of the Board as finally adopted:

Changes in valuation of Real Property made by the State Board of Equalization for 1882.

COUNTIES.	Average value per acre without improvements.		Value with improvements.		City and village property.	
	PER CENT.		PER CENT.		PER CENT.	
	Increase.	Decrease.	Increase.	Decrease.	Increase.	Decrease.
Aitkin						
Anoka						
Becker						
Beltrami						
Benton			10			
Big Stone						
Blue Earth						
Brown			60			
Carlton						
Carver						
Cass						
Chippewa			10			
Chisago			20			
Clay						
Cook						
Cottonwood						
Crow Wing				20		
Dakota			05			
Dodge						
Douglas						
Faribault						
Fillmore					05	
Freeborn			10			
Goodhue			10			
Grant			30			
Hennepin						
Houston					05	
Isanti						
Itasca						
Jackson						
Kanabec						
Kandiyohi			35			
Kittson			25			
Lac qui Parle			15			
Lake						
Le Sueur			05			
Lincoln						
Lyon			35			
McLeod			20			
Marshall			20			
Martin			25			
Meeker			25			
Mille Lacs			30			
Morrison						
Mower					15	
Murray						
Nicollet						
Nobles			10			
Norman			20			
Olmsted						
Otter Tail						
Pine						
Pipestone			20			
Polk				15		
Pope						
Ramsey						
Redwood			25			
Renville			40			
Rice						
Rock			30		10	
St. Louis						
Scott						
Sherburne						
Sibley						
Stearns			50			
Steele						
Stevens			40			
Swift			25			
Todd						
Traverse						
Wabasha			20			
Wadena						
Waseca			25			
Washington						
Watonwan			15			
Wilkin						
Winona						
Wright			10		10	
Yellow Medicine			30			

SPECIAL CHANGES MADE.

	Per Cent.
Valuation of city of Sauk Rapids increased	10
Valuation of village of Taylors Falls	50
Valuation of city of Minneapolis decreased	25
Valuation of city of Glencoe increased	20
Valuation of village of Grove City increased	10
Valuation of village of Dassell increased	25
Valuation of city of Litchfield decreased	10
Valuation of village of Princeton increased	25
Valuation of city of Fergus Falls decreased	30
Valuation of village of Fisher decreased	25
Valuation of city of St. Paul increosed	10
Valuation of city of St. Cloud increased	25
Valuation of village of Sauk Center increased	25
Valuation of city of Waseca increased	25
Valuation of village of Granite Falls increased	25
Valuation of improved land in the town of Cottage Grove decreased	12

CHANGES MADE IN VALUATION OF PERSONAL PROPERTY BY STATE BOARD OF EQUALIZATION FOR 1882.

COUNTIES.	1.						2.								3.		4.		5.		6.		10.		17.		25.		27.	
	HORSES.						CATTLE.								Mules.		Sheep.		Hogs.		Wag'ns and Carri- ages.		Piano Fortes.		Goods and Mdse.		Shares of Bank Stock.		Saloon Stock, Etc.	
	1 year.		2 years.		3 years.		1 year.		2 years.		Cows.		All Other.																	
	P'r cent		P'r cent		P'r cent		P'r cent		P'r cent		P'r cent		P'r cent		P'r cent		P'r cent		P'r cent		P'r cent		P'r cent		P'r cent		P'r cent		P'r cent	
	Increase.	Decrease	Increase.	Decrease	Increase.	Decrease	Increase.	Decrease	Increase.	Decrease	Increase.	Decrease	Increase.	Decrease	Increase.	Decrease	Increase.	Decrease	Increase.	Decrease	Increase.	Decrease	Increase.	Decrease	Increase.	Decrease	Increase.	Decrease	Increase.	Decrease
Aitkin																														
Anoka			15		05		20		20		15				50					10					10					
Becker		10				15	15					10		20		20	25						25						100	
Beltrami																														
Benton	35		60		40		40		50		50		30		100		80		60		20		100		25					
Big Stone					10						20																			
Blue Earth		10			10						10				30		15						10		30					
Brown	35		20		10		20		25		30				15						25									
Carlton																						20	100							
Carver		15		20					30							10	35		30					30	20					
Cass					20		20		20		20				10		80													
Chippewa				10	10						20			10									35							
Chisago		15					15		10		20				10		60						10							
Clay			10				20		20		20			20			30													
Cook																														
Cottonwood	10		10		30					10	20			10									20							
Crow Wing		35		50		10		40		10		15	15							35		25		30						
Dakota									20		10																		100	
Dodge					05				15		10						10				25		20							
Douglas		10												20					50					30						
Faribault			10		05						10				10		10												100	
Fillmore		15					10				15		15		10		15						05						50	
Freeborn		15				05										10			25						60				50	
Goodhue					05		20		50		20		30						50		50		10						50	
Grant	30		30				20		15		25				10		100		50											
Hennepin		35																												
Houston					05		20		15		20					10	30				15		20						25	
Isanti					05						15				40															
Itasca						30														50										
Jackson	35		40		30						20				20		35		75						10					
Kanabec							10		20		20						60													
Kandiyohi		10			05						20				20		35		35				10						50	

Lake									15								15													
Le Sueur		15							20		20		30		10		35		50				10						25	
Lincoln		15			15			20			15			25							20		100							
Lyon	10		30		25				20		20				20		10		10		50		40							
McLeod					10		20		20						15				50		10		50						100	
Marshall				10		10		20		15		10		30						15										
Martin	10		20		20			20		10			10		40		20		50				50						25	
Meeker			15		30		20		20		40		20		40		50		75		40									
Mille Lacs	50		10		10				50		20						60						20							
Morrison	15		30		10		25		20		30								50				20							
Mower			10		10			10					20		10		60		50						15				100	
Murray	12		10		15			10			20			20	10								50							
Nicollet		15							20		20												15		10					
Nobles	12				05		05				20						35		50		10		25							
Norman				10		10					10			15		10							50							
Olmsted																													50	
Otter Tail			20		05				20		10				10		35							30						
Pine				50		10		30				10		20						10										
Pipestone		25	25		10			25							10		25													
Polk			10			10					15			15		15			10											
Pope					05						15				10		10				20		60							
Ramsey					*																								50	
Redwood			15		20			10			20			10	75		50		60		20		50						100	
Renville	12		20		10						20				10		35		50		20				20				50	
Rice	12		20		05				20		20		30											25						
Rock	50		60		40		15		20		25		20		50		60		40		40		90						100	
St. Louis	10			30				25							100															
Scott					05		50		30		20					10	35		50				20		20					
Sherburne			15		15		50		50		20				20		35		75				10							
Sibley					05		10		25		20				25		35		50						50				50	
Stearns	35		15		10		50		50		50				20		100		50										75	
Steele			10		20				20		20				20		30						10							
Stevens	35		15						20		20						35		50				50						50	
Swift			10		05		20		20		20										20		25							
Todd	20		30		80		20		35		20		15		50		50		60		20									
Traverse	50		20		15		10		20												15		50							
Wabasha	25		40		20		20		20		20		50		20		35		35		15		30						75	
Wadena			20				20					25												20						
Waseca					10				20		20				10		100		100				25		30		†150		100	
Washington																													50	
Watonwan		15			15				20		20		10		10		53		50		10				30					
Wilkin		12																		20			50							
Winona	35		20				20		20				10										20						100	
Wright	35		40		10		20		30		25		20		10		35		35		10				20				100	
Yellow Medicine	20		35		35		20		20		50		10		25		3		60		40		50							

* City of St. Paul. † In the city of Waseca.

On motion, board adjourned *sine die*.

L. F. HUBBARD,
President.

Attest:
W. W. BRADEN,
Secretary.

SECOND BIENNIAL REPORT

[No. 13 in series.]

OF

THE BOARD OF REGENTS

OF

THE UNIVERSITY OF MINNESOTA,

TO THE GOVERNOR,

FOR THE

FISCAL YEARS 1881 AND 1882, ENDING NOVEMBER 30TH

Transmitted to the Legislature at the Twenty-third (Second Biennial)
Session, 1882.

MINNEAPOLIS:
JOHNSON, SMITH & HARRISON.
1883.

1-39

The present University "charter" was enacted by the legislature February 18, 1868. The first annual report was that for 1868, transmitted to the legislature of 1869. The last annual report was that for 1878. There have been accordingly eleven annual reports, and this second biennial report is No. 13 of the series.

The annual reports of progress of the GEOLOGICAL SURVEY of Minnesota will be found in the annual reports of the Board of Regents, beginning 1872. The annual report of the survey for 1881 was printed separately, no other reports of or to the Board being printed in that year.

THE UNIVERSITY OF MINNESOTA,
OFFICE OF THE BOARD OF REGENTS,
December 28th, 1882.

SIR:—In compliance with law I have the honor to forward herewith the second biennial report of the Board of Regents for the fiscal years 1881 and 1882, ending November 30th.

Very respectfully,
Your obedient servant,
HENRY H. SIBLEY,
President.

To the Hon. LUCIUS F. HUBBARD,
Governor of Minnesota.

THE BOARD OF REGENTS.

The Board of Regents is composed at this date of the following gentlemen:

The Hon. GREENLEAF CLARK, M. A., St. Paul, whose term expires..1883.
The Hon. ORSON V. TOUSLEY, M. A., Minneapolis, " " " ..1883.
The Hon. JOHN B. GILFILLAN, Minneapolis, " " " ..1884.
The Hon. KNUTE NELSON, Alexandria, " " " ..1884.
The Hon. JOHN S. PILLSBURY, Minneapolis, " " " ..1884.
The Hon. HENRY H. SIBLEY, St. Paul, " " " ..1885.
The Hon. THOMAS S. BUCKHAM, M. A., Faribault, " " " ..1885.

and ex-officiis,

The Governor of the State,
The Hon. LUCIUS F. HUBBARD, St. Paul.
The Superintendent of Public Instruction,
The Hon. DAVID L. KIEHLE, M. A., St. Paul.
The President of the University,
WILLIAM W. FOLWELL, LL.D., Minneapolis.

OFFICERS OF THE BOARD.

The Hon. Henry H. Sibley, St. Paul, President.
The Hon. O. V. Tousley, Minneapolis, Recording Secretary.
Mr. R. A. Davison, Minneapolis, Treasurer.
William W. Folwell, Minneapolis, Corresponding Secretary.

EXECUTIVE COMMITTEE.

The Hon. John S. Pillsbury, Minneapolis.
The Hon. John B. Gilfillan, Minneapolis.
The Hon. Greenleaf Clark, St. Paul.

MEETINGS.

The annual meeting is fixed by the charter for the second Tuesday in December. There is a meeting on Commencement Day; other meetings occur as called by the President of the Board.

The Executive Committee meet regularly on one of the last secular days of each month.

The following changes have taken place in the board since the last report:

The Hon. Richard Chute resigned his regency and office of recording secretary, October 20, 1881, upon considerations of health and pressing private engagements. On the 25th day of the same month the Governor appointed the Hon. J. B. Gilfillan to fill the vacancy thus occasioned.

The Hon. A. J. Edgerton, having been appointed by the President Chief Justice of the Territory of Dakota, resigned as regent December 22, 1881. The Hon. Knute Nelson was appointed to fill this vacancy February 15, 1882.

On the 31st day of January, 1882, the Hon. William R. Marshall, after many years of laborious and efficient service as a member of the board, submitted his resignation to the Governor, who, on the 1st day of February, appointed in his stead, the Hon. J. S. Pillsbury.

February 1st, 1882, Regents Sibley and Buckham, upon the expiration of their terms, were re-appointed by the Governor for the usual term of three years.

On the 16th of August, 1882, the Hon. David L. Kiehle was appointed Superintendent of Public Instruction for the State of Minnesota, and became a regent *ex-officio*, succeeding the Hon. David Burt, who, compelled to lay down his work by severe illness, died September 24, 1881. At the annual meeting in December, the board passed, and placed on record, resolutions expressing their appreciation of his long and valuable services and his high character.

On the 29th day of June, 1882, Regent Tousley was granted a leave of absence, and soon after set out for Trieste, Austria, for a residence of indefinite, but not extended duration.

THE GENERAL FACULTY.

The membership of the general faculty at the present time is as follows:

WILLIAM W. FOLWELL, President,
Political Science.

JABEZ BROOKS, D. D., Professor,
Greek, and in charge of Latin.

NEWTON H. WINCHELL, Professor,
State Geologist.

CHAS. N. HEWITT, M. D., Non-Resident Professor,
Public Health and Hygiene.

JOHN G. MOORE, Professor,
German.

MOSES MARSTON, Ph. D., Professor,
English.

CHRISTOPHER W. HALL, Professor,
Geology, Mineralogy and Biology.

JOHN C. HUTCHINSON, Assistant Professor,
Greek and Mathematics.

JOHN S. CLARK, Assistant Professor,
Latin.

MATILDA J. WILKIN, Instructor,
German and English.

MARIA L. SANFORD, Professor,
Rhetoric and Elocution.

WILLIAM A. PIKE, C. E. PROFESSOR,
Engineering and in charge of Physics.

JOHN F. DOWNEY, C. E. PROFESSOR,
Mathematics and Astronomy.

JAMES A. DODGE, PH. D. PROFESSOR,
Chemistry.

ALEXANDER T. ORMOND, PROFESSOR,
Mental and Moral Philosophy
and History.

CHARLES W. BENTON, PROFESSOR,
French.

EDWARD D. PORTER, PROFESSOR,
Agriculture.

WILLIAM H. LEIB, INSTRUCTOR,
Vocal Music.

WILBUR F. DECKER, INSTRUCTOR,
Physics, Shop Work and Drawing.

EDGAR C. BOWEN, U. S. A., PROFESSOR,
Military Science.

WILLIAM A. NOYES, PH. D., INSTRUCTOR,
Chemistry.

HENRY M. WAITT, C. E., INSTRUCTOR,
Engineering and Drawing.

Professor Winchell, although holding the rank of professor, has been so fully occupied with his duties as State Geologist that the Board were obliged some three years ago to relieve him from teaching.

Professor Hewitt's duties are necessarily confined to two short courses of lectures, one on the hygiene of school life to the new students of each year, the other on sanitary science to each senior class. For these he has exacted no compensation beyond his traveling expenses.

The following changes have been made in the corps of instructors since the last report: At the close of the year 1881-82, the Board of Regents detached the subjects of rhetoric and elocution from the chair of English language and literature, and formed a separate professorship of rhetoric and elocution, electing Miss Maria L. Sanford to the occupancy.

At the beginning of the year 1881–'82, Edgar C. Bowen, Captain U. S. A. (retired) was employed to take charge of the department of military science, and to perform the duties of registrar. This department has suffered from the frequent changes in the incumbency due to the regulations of the war department of the general government. It is hoped that the selection of a professor from the retired list will remedy this evil and give this department an uninterrupted development.

Mr. Wilbur F. Decker, a graduate of the Maine State College, was employed as instructor in shop work, drawing and physics at the beginning of the year 1881–'82. Mr. H. M. Waitt, a graduate of the Massachusetts Institute of Technology and afterwards an instructor in the same institution, was engaged as an assistant in the departments of civil engineering and industrial drawing at the beginning of the present year; and Mr. William A. Noyes, Ph. D., a graduate of the Johns Hopkins University, as an assistant in the chemical laboratory at the same time.

At the date of the last report, the professorship of agriculture was vacant, and the board were making strenuous efforts to secure a capable and experienced person to take charge of it. These efforts resulted in the employment in January, 1881, of Professor Edward D. Porter of Delaware college, Newark, Delaware, with which institution he had been connected for some thirty years. Professor Porter brought to the new field the results of a long and varied experience in many lines of practical and scientific research and instruction. His conduct of his department has fully justified the action of the Board in their choice, and has given great satisfaction to the practical agriculturists and horticulturists of the State.

EMPLOYES.

Warren Upham, M. A., Assistant in Geological Survey.
Charlotte A. Rollit, B. L., Assistant Librarian,
John A. Gallow, Janitor Main Building.
James Bowen, Green-house man and Janitor of the Agricultural College.

A number of other persons, mostly students, have been employed by the day or month on the experimental farm and gardens, during the working season.

STUDENTS.

For information as to the enrollment and classification of students, and the number graduated during the period covered by this report, you are respectfully referred to the report of the President of the University hereto annexed. The number of graduations has increased steadily, year by year, but the Board congratulate themselves and the State, not so much upon the number as upon the excellent scholarship and high character of the alumni. The Board have constantly supported the faculties in holding up the standard of graduation. By lowering the standard but a little the list of graduates could have been greatly augmented.

The same report is referred to generally for information in regard to all matters strictly educational.

BUILDINGS.

The present buildings have been kept in good repair at a moderate expense. The means are much needed for constructing a sewer to receive the drainage of the main building and the new structures which it is proposed to erect in its vicinity, and to suitably light the assembly hall for evening meetings.

The last report of this Board set forth in strong terms the need of new buildings to enable the institution to develop at equal pace with the public school system of the State, and with like institutions of neighboring States. The joint committee of the two houses of the Legislature, after a prolonged consideration of the subject on the spot, agreed unanimously to recommend a liberal appropriation for the erection and outfit of new buildings. This recommendation was favorably responded to by the Legislature, who appropriated the gross sum of one hundred and eighty thousand dollars, in six annual installments of thirty thousand dollars each. The general plans of the several buildings had been submitted to the joint committee on the University, and the Board were prepared promptly to begin work upon them. It chanced, however, that the State Capitol was destroyed by fire, almost at the moment of the passage of the appropriation bill, thus creating a sudden and extensive demand upon the State treasury. Other unusual expenses soon after supervened to delay the payment of the first installment. When the time came for the second installment to be met there were no funds available, and up to the present date the Board have not been able to draw from the treasury a single dollar for the erection of the new buildings.

Advantage has been taken of the delay to mature and elaborate the building plans, and to study the improved methods of lighting, heating and ventilation. A large amount of useful information has been accumulated, which the architect, employed by the Board, has embodied in his designs and specifications.

The law appropriating the funds, while indicating the structures to be erected, confided the order of their erection to the regents. After careful investigation the conclusion reached was that the structures should follow in this order:

1st. The Farm House.
2nd. The Military building and Gymnasium.
3rd. The Engineering building.
4th. The Museum.
5th. The Library.
6th. The Astronomical Observatory.

It was at the same time further agreed that, so far as practicable, the said buildings be grouped around the present main building, and be of a common or uniform size ; also, to be heated from a common source, if practicable.

It is the ardent hope of the Board that the reasons which have deprived them of the use of the appropriations will within a very short period have ceased to exist, and that they may with the opening of the next season, place two or more of the buildings under contract.

At the time of the last visitation by the Joint Committee of the Legislature already referred to, their attention was attracted to certain parcels of land still abutting against the Campus on the northwest, and their judgment was that these should be acquired if possible. The Legislature of 1881, upon their recommendation appropriated the sum of twenty thousand dollars for the purpose. The negotiations of the Board to secure possession by purchase having failed, proceedings were instituted in the District Court for condemnation under the statute. These are still pending, but will no doubt eventuate in securing a valid title to the property.

The Board have been compelled to submit to the opening of a public street by the City Council of Minneapolis, connecting Fifteenth avenue S. E. and Pleasant street. The nature of the ground, however, is such that no cutting or filling will be needed of a magnitude sufficient to break the contour of the adjacent ground. This bisection of the campus is in a considerable degree compensated for by the contemporaneous vacation of Bluff street, thus making a desirable strip of land on the river bank heretofore cut off by that street continuous with the campus, and also better accomodating the proper location of the new buildings.

THE GEOLOGICAL SURVEY.

The annual report of the State Geologist, Professor N. H. Winchell, shows that this important work has been prosecuted with commendable diligence. Much valuable information has been furnished touching the economic geology of the State, and the interest of men of science has been attracted by many curious problems in geology, whose solution may greatly modify received opinions regarding them.

The final report of the geological portion of the work proper has been in preparation, and one volume is now ready for publication. It contains a large amount of matter of high importance to the State. The Board think that the Legislature will provide for the printing, stereotyping, engraving and binding of a moderate edition at least.

The geological work of the survey has so occupied the time of the limited force in the employ of the Board that but comparatively little has been accomplished on the natural history portion. The Board hope soon to be able to have this work prosecuted, but a considerable time must necessarily be devoted to it.

EXPERIMENTAL FARM.

The investigations of the present professor of agriculture, soon after entering their service, convinced the Board of Regents that a large part of the tract originally acquired for an experimental farm, chiefly on account of its convenient proximity to the campus and buildings, was not adapted to the purposes in view.

Upon their application the Legislature of 1881 passed an act authorizing its sale and the reinvestment of the proceeds "in land of a suitable character and location for experimental farming, to be carried on in connection with the University, and under the supervision of the regents as provided by law."

Under this law the Board proceeded first to the selection of a new tract of suitable character and location, deeming it unwise and not to be intended that the department should, by a premature sale of the old tract, be left without land for experimental uses. After examining a considerable number of parcels of varying desirability and prices, the Board at length decided that the property, known as the "Bass Farm," lying on the Como road, about one and one-half miles eastwardly from the campus, being the northwest quarter of section 21, township 29, range 23, less five acres, combined in the highest degree the qualities implied in the law. They accordingly obtained the refusal of the property at $200 per acre, and later the actual possession, upon the payment of ten thousand dollars. Other payments were by agreement deferred in such way as to enable the Board to meet them from the proceeds of the sale of the old farm.

Having thus secured a piece of land for a new farm, which it would be difficult, if not impossible, to duplicate in the State, location, exposure, contour and variety of soil, all considered, the next step was towards the sale of the old farm. The land was first carefully surveyed and platted. This consumed some time. The necessity of awaiting the action of the City Council of Minneapolis, which has a jurisdiction over all plats within two miles of the city limits took more time. After being suitably advertised the property was finally offered for sale at public auction on the 11th of October last. On that and the following day 152 lots, and a small triangular piece, containing about two and one-half acres, were sold for the gross sum of forty-seven thousand four hundred dollars. 164 lots were left unsold, partly for lack of time, partly because the title to certain ones cannot be perfected until the court shall have vacated some portion of "Baker's Addition" which had been re-platted to conform with the extension of University avenue and its parallel streets. These lots it is believed will sell for as much as equivalent areas of the lots sold. The receipts from these sales will pay for the new farm and for a large part of the equipment of buildings, water-supply, implements and stock. The original cost of the old farm was about $7,500.

It is the intention of the Board, while avoiding any extravagance, to equip this new farm in such a manner as to make it in the highest degree useful and to render it a source of pride and increasing interest and value to the farmers of the State.

Plans for the necessary buildings have been already drawn and discussed.

THE FRUIT FARM.

The report of Mr. Gideon, the superintendent, show the progress he has been able to make in his interesting experiments. The Board are of the opinion that all of the operations of this farm, save those requiring seclusion and a water exposure, can be hereafter carried on more economically on the experimental farm, where they can be seen by students and others interested. Some portions of the fruit farm are not particularly adapted to the purpose, and it happens that those portions have become valuable for building sites for summer residents. It is respectfully suggested that the Legislature authorize their sale and the application of the proceeds to other uses in connection with the agricultural department.

INSTRUCTION.

No material changes have been made in the regular courses of study, since the general re-arrangement of them in 1880.

The work of the faculty has been increased, however, by the opening of certain special courses, chiefly by the voluntary action of some of the professors, for which it is proper that the Board give credit in this report. These are:

I. THE FARMERS' LECTURE COURSE.

For many years the Board had offered to the farmers of the State the opportunity of hearing a practical course of lectures, upon condition that a number not less than 30 should declare in advance their desire to attend.

This condition was never fulfilled until professor E. D. Porter, under authority of the Board, took hold of the enterprise in the early winter of 1882. He was so successful in obtaining the attention and co-operation of farmers, dairymen, nurserymen and others, that over two hundred persons were in attendance on the course. The U. S. Commissioner of Agriculture made the journey from the seat of government to give the opening address. At the close of the course the attendants adopted resolutions of thanks and congratulations for the opportunities enjoyed, and desiring its continuation as part of the regular work of the Agricultural College.

II. THE EVENING DRAWING SCHOOL.

In the fall of 1880 Professor Pike, voluntarily, offered to give a course of free evening lessons in industrial drawing to young mechanics, if the Regents would furnish the room, lighted and warmed. The enterprise was an immediate success, the room being filled to its full capacity.

The course was repeated with the same success in the fall of 1882, and a third is now in operation.

The attendance upon this course is necessarily somewhat local, but it has been found that a considerable proportion of the mechanics are merely temporary residents of the University city. In the first year both of the prize men were non-residents. The strongest expressions of gratitude for the instruction thus given have been repeatedly made by those receiving it.

III. THE COURSE IN SHOP-WORK.

The disappearance of the apprenticeship system of training mechanics has led of late years, both at home and abroad, to the organization of industrial schools in great variety.

The exhibits made by some of these at the Centennial Exposition showed what had then been accomplished and brought into general view the plans and methods of such schools. It was demonstrated that by a course of regular graded exercises in working wood, metals and other materials accompanied by oral or text-book instruction, a boy could be so trained that in a very short time he would be in possession of the foundation principles and processes of all the crafts. Several well known institutions in this country at once organized and set in operation industrial departments of greater or less magnitude.

The engineering schools generally opened courses in shop work as auxilliary to their scientific instruction, in order to give their students the opportunity of becoming practically acquainted with the nature of materials and the principles of construction.

This Board, unwilling that the University should be in the rear of this most important movement in the northwest, resolved in 1881,.to open, albeit in a very moderate way, the course in Shop Work and Drawing.

One thousand dollars were set apart for the purchase of a steam engine, and a small outfit of forges, vises, bench and fitting tools, and wood working tools. A small lathe had been purchased some years before. The course was opened in the fall of 1881, under the supervision of Professor Pike, Mr. W. F. Decker, an expert mechanic as well as a well trained scientific scholar being the immediate instructor. The success of the course fully justified the expectations of the Board and encouraged them to continue it in future operation.

IV. THE SUMMER SCHOOL.

In the spring of 1881, Profs. C. W. Hall and J. A. Dodge offered to open at the University courses of instruction in their specialties to be free to all attendants, it being expected that these would be chiefly teachers. The use of the building, cabinets and apparatus having been granted, these gentlemen, with the assistance of Prof. C. E. Bessey, of the Iowa State Agricultural College, distinguished as a botanist and an author, gave free instruction in botany, chemistry, geology and mineralogy during the month of July to a large body of persons, most of whom were teachers of our own and the neighboring State of Wisconsin. At the annual meeting in December, 1881, this Board adopted resolutions of thanks to these officers who had performed such excellent service without compensation.

Again in the summer of 1882, similar courses were delivered by

Prof. Hall and Dodge, assisted by Mr. J. C. Arthur, a skillful botanist and former pupil of Prof. Bessey. On this occasion, however, they were reinforced by other colleagues offering instruction in additional branches. Professor J. G. Moore gave a course in German, Professor M. Marston in English literature and Professor M. L. Sanford in rhetoric and elocution. The school no longer remained a "Summer School of Science," but became a "Summer School of Science and Literature." The literary instruction appeared to be as much in demand as the scientific. The attendance was largely in excess of that of the previous year.

In regard to these special courses of instruction the Board have to say that they think they may congratulate themselves and the State upon this addition to the privileges offered by the University. But they are also obliged to add that it cannot be expected that such advantages can be indefinitely offered without cost.

When the legislature shall come to consider the amount of support which should be set apart for the institution it will be a proper subject for their consideration, whether some means ought not to be furnished for carrying on this important practical work. The institution is sacredly pledged by the law to adapt its work to the interests of the industrial classes and the Board accept it not merely as a duty but as a pleasure to plan and execute measures calculated to render such service.

FINANCES.

The reports of the treasurers of the University for the last two years are herewith transmitted. These have been carefully examined by the auditing committee, who have compared the vouchers with the entries. The debits and credits having been found correct and properly supported by the vouchers, the committee has recommended their approval, and the reports have accordingly been adopted.

The following statement derived from the report of the State Auditor shows the present condition of the funds of the University:

Permanent University Fund at interest	$601,032.71
Amount cash on hand	14,282.85
Total amount of permanent fund	$615,315.56

CONCLUSION.

The Board avail themselves of this opportunity to again present o the representatives of the people the needs and claims of the niversity.

The foundations have been, as we trust, wisely and soundly laid. he rapidity with which the superstructure shall rise will depend hiefly on the means which may be placed at the disposal of the oard.

The Board congratulate themselves and the people on the progress which has been already made, and find in it the best encour-gement to future effort.

All of which is respectfully submitted.

TREASURER'S REPORTS.

I.

TRESURER CHUTE'S REPORT FOR 1881.

RICHARD CHUTE, *Treasurer, in account with the Board of Regents of the University of Minnesota:*

CURRENT EXPENSES.

DR.

1880.				
Nov.	30.	To balance from last statement	$5,976 50	
Dec.	21.	To cash from State Treasurer	4,000 00	
1881.				
Jan.	26.	To cash from State Treasurer	4,000 00	
Feb.	22.	To cash from State Treasurer	5,000 00	
March	23.	To cash from State Treasurer	3,000 00	
April	9.	To cash from State Treasurer	5,000 00	
May	27.	To cash from State Treasurer	4,000 00	
June	10.	To cash from State Treasurer	4,000 00	
Sept.	15.	To cash from State Treasurer	4,000 00	
Oct.	26.	To cash from State Treasurer	5,000 00	
Nov.	26.	To cash from State Treasurer	4,000 00	
Nov.	30.	To cash from students' fees	930 00	

CR.

1881.				
Nov.	30.	By balance, heating account		$3,411 69
		By balance, furniture account		262 06
		By balance, expenses, farm and campus account		2,972 55
		By balance, fruit farm account		73 00
		By balance, incidentals account		894 27
		By balance, library account		2,497 06
		By balance, repairs account		1,867 15
		By balance, salaries for instruction account		27,676 25
		By balance, employees and workmen account		1,406 05
		By balance, plant house account		209 83
		By balance, printing, stationery, &c., account		883 54
		By balance, chemical laboratory account		685 52
		By balance, apparatus account		1,942 52
		By amount carried to new account		4,125 01
			$48,906 50	$48,906 50

SALARIES FOR INSTRUCTION.

Cr.

			No. Voucher.		
1880.					
ec.	24.	By E. D. Porter, instruction	35		104 25
ec.	31.	By faculty, pay roll salaries	41		2,250 00
1881.					
an.	17.	By W. W. Folwell, house rent	57		250 00
rn.	31.	By faculty, pay roll salaries	79		2,450 00
eb.	28.	By faculty, pay roll salaries	118		2,450 00
Iar.	8.	By E. D. Porter, instruction	119		200 00
Iar.	8.	By E. D. Mayo, instruction	122		40 00
Iar.	22.	By W. H. Leib, instruction	142		90 00
Iar.	31.	By faculty, pay roll salaries	155		2,450 00
pril	30.	By facully, pay roll salaries	199		2.450 00
Iay	24.	By W. H. Leib, instruction	216		48 00
Iay	31.	By faculty, pay roll salaries	234		2,450 00
une	30.	By faculty, pay roll salaries	282		2,450 00
uly	13.	By W. W. Folwell, (house rent)	311		250 00
ug.	1.	By E. D. Porter, instruction	320		200 00
ug.	11.	By M. L. Sanford, instruction	329		24 00
ept.	12.	By E. D. Porter, instruction	365		200 00
ept.	12.	By W. F. Decker instruction	366		100 00
ept.	30.	By faculty, pay roll salaries	393		2,970 00
ct.	31.	By faculty, pay roll salaries	424		2,970 00
ov.	8.	By W. H. Leib, instruction	438		60 00
ov.	30.	By faculty, pay roll salaries	479		2,970 00
ov.	30.	By Jabez Brooks, instruction	480		250 00
		To balance to current expense		$27,676 25	$27,676 25

EMPLOYEES AND WORKMEN.

Cr.

			No. Voucher.	
1880.				
ec.	24	By A. H. Nunn, Dec. wages, janitor	30	$ 18 00
ec.	24	By W. C. Bryant, Dec. salary, janitor	31	63 70
1881.				
an.	31	By W. C. Bryant, Jan. salary, janitor	73	63 70
an.	31	By A. H. Nunn, Jan. salary, janitor	76	18 00
eb.	28	By W. C. Bryant, Feb. salary, janitor	111	63 70
eb.	28	By A. H. Nunn, Feb. salary, janitor	115	18 00
Iarch	11	By T. E. Trussell, 34 hours labor	121	5 10
Iarch	18	By W. C. Bryant, labor to G. Budds, &c.	124	8 50
Iarch	31	By W. C. Bryant, March salary, janitor	149	63 70
Iarch	31	By A. H. Nunn, March salary, janitor	158	18 00
pril	30	By W. C. Bryant, April salary, janitor	192	63 70
pril	30	By Alex. H. Nunn, April salary, janitor	195	18 00
Iay	31	By W. C. Bryant, May salary, janitor	228	63 70
Iay	31	By A. H. Nunn, May salary, janitor	229	18 00
une	22	By A. H. Nunn, June salary, janitor	270	18 00
uly	5	By W. C. Bryant, June salary, janitor	300	63 70
ept.	10	By J. E. Gallow, janitor Aug. and July	383	100 00
ept.	30	By J. E. Gallow, janitor Sept	392	50 00
ct.	4	By J. E. Gallow, cleaning building	399	45 00
ct.	4	By J. E. Gallow, sweeping	400	24 00

			No. Voucher.		
Oct.	4	By A. H. Nunn, Sept. salary, janitor.......	404		27 00
Nov.	1	By J. E. Gallow, janitor, Oct................	427		50 00
Nov.	1	By A. H. Nunn. Oct. salary, janitor.........	429		27 00
Nov.	21	By A. H. Nunn, cleaning shop....	460		3 55
Nov.	21	By J. E. Gallow, cleaning and sweeping....	466		16 00
Nov.	30	By J. E. Gallow, janitor, Nov...............	482		50 00
Nov.	30	By A. H. Nunn, Nov. salary, janitor........	483		27 00
Nov.	30	By R. Chute, salary as Sec. and Treas.....	485		400 00
		To balance to currant expense............		$1,405 05	$1,405 05

EXPERIMENTAL FARM AND CAMPUS.

Dr.

1881.			
May	10.	To G. S. Grimes, sales....................................	$160 00
Sept.	29.	To G. S. Grimes, sales...........................	67 50
Nov.	30.	To E. D. Porter.........................	109 88

Cr.

			No. Voucher.	
1880.				
Dec.	4.	By G. S. Grimes, Nov. pt. pay roll..........	6	$22 12
Dec.	4.	By G. S. Grimes, Nov. pt. pay roll.........	7	4 32
Dec.	14.	By G. S. Grimes, seeds, rakes and hauling.	16	19 35
Dec.	15.	By P. C. Heath, teaming..................	22	2 55
Dec.	24.	By Thomas Budds, farm hand....	29	45 00
1881.				
Jan.	13.	By W. Q. Greeley, repairs and shoeing....	47	10 50
Jan.	14.	By Geo. S. Grimes, labor in Dec...........	54	6 57
Jan.	25.	By Chas. Henry, stove repairs, &c	62	2 60
Jan.	31.	By Thomas Budds, farm hand............	75	45 00
Feb.	28.	By Thomas Budds, farm hand.............	113	45 00
Mar.	31.	By Thomas Budds, farm hand.............	151	45 00
April	25.	By A. J. Creigh, horse and buggy..........	177	325 00
April	23.	By Jno. Shulte, harness	178	40 00
April	30.	By Thomas Budds, farm hand.............	197	45 00
May	4.	By Arthur Budds, hauling wood.....	205	3 90
May	6.	By J Townsend, labor in April...........	206	25 50
May	21.	By E. D, Porter, pay roll, &c. for May.....	214	84 54
May	31.	By Thomas Budds May salary............	227	45 00
June	7.	By J. Denahue, labor on farm	240	9 75
June	7.	By H. Winchell, labor on farm, ...	241	9 00
June	7.	By S. D. Townsend, labor on farm.........	242	12 60
June	7.	By G. G. Robinson, labor on farm.........	243	20 00
June	7.	By P. C. Heath, labor on farm	244	66 00
June	7.	By Joseph Townsend, labor on farm......	245	39 00
June	7.	By A. E. Doten, labor on farm	246	4 20
June	7.	By Eli Larson, labor on farm.........	247	1 20
June	7.	By Galpin & Emerson, labor on campus ..	249	3 90
June	7.	By Jacob Schlosser, sodding	250	17 00
June	7.	By Merriman, B. & Co., fencing...........	251	32 00
June	7.	By W. J. Dean, scraper	252	9 50
June	7.	By J. Treft, rent of lot......................	253	15 00
June	7,	By E. D. Porter, sundry bills..............	254	25 28
July	2.	By Geo. S. Grimes, labor in May & June..	288	49 04
July	2.	By J. S. Donahue, labor in June..........	289	36 90
July	2.	By N. M. Baker, labor in June............	290	22 20

			No. Voucher.		
July	2.	By G. G. Robinson. labor in June..........	291		49 41
July	2.	By S. D. Townsend, labor in June,.........	292		34 80
July	2.	By A. E. Doten, labor in June..............	293		35 85
July	2.	By J. C. Wilson, labor in June.............	294		19 50
July	2.	By J. B. Gould, labor in June..............	295		33 15
July	2.	By J. Townsend, labor in June............	296		36 60
July	2.	By P. C. Heath, labor in Juhe..............	297		71 40
July	2.	By Thomas Budds, June salary.......... ..	298		45 00
July	5.	By Arnell & Christlieb, repairing harness.	305		4 65
Aug.	12.	By Edw. D. Porter, labor pay roll for July	331		302 95
Aug.	12.	By G. G. Robinson, balance of May bill....	332		12 85
Aug.	12.	By E. D. Porter, sundry bills	333		66 27
Aug.	12.	By Janney, Brooks & E., tools & h'ware...	334		33 71
Aug.	13.	By Minn. St'd Mnfg Co., haystack cover..	335		14 25
Aug.	13.	By Wyman Elliot, plants, roses, &c........	336		66 00
Sept.	12.	By E. D. Porter, labor pay roll, Aug.... .	364		303 85
Sept.	24.	By G. S. Grimes, labor in Sept.............	387		39 00
Oct.	4.	By E. D. Porter, labor pay roll for Sept...	407		196 08
Oct.	4.	By W. Q. Greeley, blacksmithing..........	405		17 30
Oct.	7.	By Geo. Huhn & Co., oil, brushes, &c......	413		9 05
Nov.	4.	By Jas. W. Queen & Co., mdse.............	430		129 00
Nov.	4.	By E. D. Porter, labor pay roll for Oct....	433		363 52
Nov.	8.	By Geo. Scrumm, horse medicine, &c.....	441		19 00
Nov.	21.	By H. W. S. Cleveland, services as gardn'r.	469		100 00
Nov.	30.	By E. D. Porter, sundry bills...............	490		57 22
		To balance to current expense		$2,972 55	
				$3,249 93	$3,249 93

PLANT HOUSE.

Dr.

1881.			
Nov.	30.	To E. D. Porter..	$100 35

Cr.

			No. Voucher.		
1880.					
Dec.	4.	By W. J. Barrett, Nov. Labor	5		$19 78
1881.					
Jan.	13.	By W. J. Barrett, Dec. Labor.......... ..	45		16 00
Feb.	2.	By W. J. Barrett, Thermometer, &c.......	86		1 00
Feb.	2.	By W. J. Barrett, Jan. Labor..............	87		18 33
Mar.	18.	By W. J. Barrett, Feb. Labor..............	125		12 60
Mar.	19.	By G. G. Robinson, Feb. Labor,............	137		3 45
April	5.	By W. J. Barrett, Mar. Labor..............	166		21 91
May	2.	By W. J. Barrett, April Labor	202		31 10
June	1.	By W. J. Barrett, May Labor..............	236		30 75
June	7.	By Ellwanger & Barry, Roses.	248		16 66
July	1.	By W. J. Barrett, Jnne Labor.............	284		52 00
Aug.	1.	By W. J. Barrett, July Labor..............	318		39 35
Sept.	16.	By W. J. Barrett, Aug. Labor..............	381		35 40
Nov.	21.	By W. J. Barrett, sundry bills.............	462		2 85
		To balance to current expense		$200 83	
				$301 18	$301 18

LIBRARY ACCOUNT.

Dr.

1881.				
June	28.	To F. Gideon, for damages		$ 75
		To Hilyer, for damages		25

Cr.

			No. Voucher.		
1880.					
Dec.	24.	By Charlotte A. Rollit, Dec. salary	33		$ 55 00
Dec.	24.	By Geo. W. Keith, periodicals	37		140 26
Dec.	31.	By R. C. M'Dillony periodicals	39		24 00
Dec.	31.	By C. C. Curtis, books	40		18 22
1881.					
Jan.	26.	By Pott, Young & Co., books	63		339 40
Jan.	31.	By C. A. Rollit, Jan. salary	74		55 00
Feb.	12.	By Lillian S. Todd, book	96		1 50
Feb.	12.	By Lillian S. Todd, labor in Nov	97		30 00
Feb.	12.	By Lillian S. Todd, labor in Dec	99		34 54
Feb.	28.	By C. A. Rollit, salary for Feb	112		55 00
Mar.	22.	By Smith & Nichols, books	143		133 00
Mar.	28.	By Lillian S. Todd, labor in Feb	145		20 90
Mar.	31.	By C. A. Rollit, Mar. salary	150		55 00
April	4.	By E. & J. B. Young & Co., books	167		141 64
April	7.	By Lillian S. Todd, labor in Mar	168		33 00
April	18.	By Pott, Young & Co , books	175		396 50
April	28.	By W. O. Davis & Co., books	187		212 00
April	30.	By C. A. Rollit, April salary	193		55 00
May	7.	By L. S. Todd, labor in April	209		46 38
May	30.	By E. J. Thompson, books	223		14 00
May	31.	By C. A. Rollit, May salary	231		55 00
Jnne	3.	By G. M. Fist, cyclopedia	239		50 00
June	9.	By Lillian S. Todd, labor in May	256		18 53
June	11.	By C. A. Rollit, June salary	262		55 00
June	15.	By E. & J. B. Young & Co., books	265		76 11
Sept.	13.	By Rand, McNaly & Co., atlas	376		23 00
Sept.	14.	By C. W. Davison, directory, 1880-81	377		6 00
Sept.	16.	By E. & J. Young & Co., books	382		100 72
Oct.	7.	By Jesse C. Wilson, dusting books	415		24 00
Oct.	12.	By Emily L. Hough, tending library	418		6 00
Oct.	12.	By Emily L. Hough, tending library	419		5 00
Nov.	1.	By C. A. Rollit, Oct. salary	426		50 00
Nov.	21.	By C. A. Rollit, Sept. and Aug. salary	461		100 00
Nov.	21.	By E. L. Hough, library work	467		7 95
Nov.	30.	By C. A. Rollit, Nov. salary	496		50 00
		To balance to current expense		$2,497 06	
				$2,498 06	$2,498 06

REPAIRS.

CR.

1880.			No. Voucher.		
Dec.	13.	By W. H. Savidge, hardware and lumber	12		$ 25 80
Dec.	13.	By W. H. Savidge, labor in Nov..............	13		23 70
1881.					
Jan.	13.	By Sykes & Andrews, plumbing..............	43		11 50
Jan.	13.	By W. H. Savidge, carpenter work	44		18 00
Jan.	14.	By Ball & Naylor, couplings and fittings..	50		17 27
Jan.	25.	By Gallison & Gowen, hardware..............	61		32 93
Feb.	2.	By W. H. Savidge, lumber........................	83		15 73
Feb.	2.	By W. H. Savidge, carpenter work..........	84		19 40
Feb.	19.	By M. W. Glenn, rivets and nuts...............	105		4 69
March	19.	By Cauvet & Reid, pipe, labor, &c............	133		38 57
March	19.	By W. H. Savidge, carpenter work..........	136		12 29
March	21.	By W. H. Savidge, lumber and work......	140		27 98
April	5.	By W. H. Chambers, repairing pipes, &c.	163		3 00
April	5.	By W. H. Chambers, rep. hydraulic motor	164		1 10
April	7.	By W. H. Savidge, material......................	169		15 91
April	7.	By W. H. Savidge, carpenter work..........	170		14 90
April	9.	By Ball & Naylor, fittings and labor.........	172		1 80
April	28.	By Sykes & Andrews, plumbing.................	181		12 65
May	2.	By W. H. Chambers, labor in Nov. '81......	201		6 90
May	4.	By W. H. Savidge, carpenter work.	203		11 60
June	18.	By W. H. Savidge, carpenter work..........	268		3 70
June	18.	By W. H. Savidge, hardware.....................	269		13 73
July	1.	By W. H. Savidge, carpenter work......... ..	285		44 00
Aug.	1.	By W. H. Savidge, carpenter work..........	319		71 25
Aug.	13.	By Sykes & Andrews, gas machine.........	337		10 24
Aug.	16.	By Tyler & Leighton, lumber.....................	340		24 04
Aug.	17.	By A. R. Miller, locks, &c.........................	345		13 37
Aug.	22.	By Nelson Tenney & Co., lumber...............	351		47 09
Sept.	1.	By Gallison & Gowen, hardware...............	353		5 06
Sept.	1.	By A. A. Pond, labor.....................	354		1 85
Sept.	13.	By Nelson, Tenney & Co., lumber...............	373		126 31
Sept.	13.	By Michael Lyons, plastering..................	374		75 50
Sept.	13.	By Sykes & Andrews, hose, reel, &c.........	375		40 40
Sept.	17.	By Cauvet & Reid, labor...........................	386		3 10
Oct.	1.	By Gallison & Gowen, hardware...............	295		20 08
Oct.	1.	By Gallison & Gowen, hardware...............	296		4 50
Oct.	4.	By Spink & Co., mdse............................ ..	403		67 26
Oct.	4.	By Nelson Tenney & Co., lumber......	408		5 04
Oct.	5.	By Hagen & Kelley, painting, &c............	411		572 50
Nov.	5.	By Gallison & Gowen, hardware	435		6 95
Nov.	18.	By Gallison & Gowen, hardware...............	456		3 36
Nov.	21.	By Geo. Huhn & Co., mdse...........	458		26 90
Nov.	21.	By Jno. Speedy, paper hanging...............	471		175 00
Nov.	23.	By Harvey Wales & Co., paper and border	473		180 80
Nov.	23.	By DeLamatic & Bailey, castings......	474		5 60
Nov.	30.	By A. H. Nunn, labor................................	487		3 80
		To balance to current expense..................................		$1,867 15	
				$1,867 15	$1,867 15

PRINTING, ADVERTISING, POSTAGE, &c.

1880.		Cr.	No. Voucher.		
Dec.	8.	By Johnson, Smith & Harrison	8		6 25
Dec.	15.	By Johnson, Smith & Harrison	21		41 50
Dec.	24.	By Minn. Tribune Co., printing	36		8 00
1881.					
Jan.	13.	By Minn. Tribune Co., printing	49		21 25
Jan.	18.	By Kirkbridge & Co., stationery	58		8 60
Feb.	12.	By H. J. Crist, advertising	94		2 60
Feb.	12.	By Edgar Nash, postage	95		15 00
Feb.	28.	By Ariel Association, advertising	107		30 00
Mar.	19.	By Evening Journal, advertising	130		5 30
Mar.	19.	By Eagle Publishing Co., printing	135		7 50
Mar.	26	By Geo. H. Keith, postage	144		13 95
April	8.	By Johnson, Smith & Harrison, printing and stationery	171		28 00
June	1.	By Ariel Association, advertising	235		39 00
June	9.	By Geo. H. Keith, postage	255		40 00
June	10.	By Minnesota Tribune Co., printing	258		42 50
June	10.	By Minnesota Tribune Co., printing	259		9 00
June	10.	By Minnesota Tribune Co., printing	260		347 90
June	28.	By Edgar Nash, postage	274		6 00
June	28.	By Geo. H. Keith, postage	276		43 48
July	6.	By Hennig & Kruckenburg, printing	310		4 00
Sept.	1.	By Johnson, Smith & Harrison, printing	356		5 75
Sept.	16.	By Pioneer Press Co., advertising	385		55 50
Oct.	4.	By Minnesota Tribune Co., printing	406		49 50
Oct.	7.	By C. D. Whitall & Co., stationery	414		4 37
Oct.	26.	By Eagle Publishing Co., printing	423		4 00
Nov.	9.	By Davidson & Ross, printing	443		15 50
Nov.	15.	By Minnesota Tribune Co., printing	450		24 00
Nov.	16.	By Johnson, Smith & Harrison, stationery	453		24 00
		To balance to Current expense		$893 54	
				$893 54	$893 54

GEOLOGICAL SURVEY.

Cr.

1880.				
Dec.	1.	By balance from last statement		$21,347 42
			No. Voucher.	
Dec.	4.	By cash, Warren Upham, salary for Aug.	4	100 00
Dec.	10.	By cash, Jas. W. Queen & Co., merchandise.	9	18 00
Dec.	10.	By cash, Mayhew Bros., carribon, skeleton, &c	16	16 00
Dec.	15.	By cash, Geo. Huhn & Co., merchandise	20	75
Dec.	18.	By cash, Warren Upham, expenses on survey trip	23	15 74
Dec.	24.	By cash, N. H. Winchell, salary for Dec.	25	200 00
Dec.	24.	By cash, Warren Upham, salary for Dec.	26	100 00
Dec.	24.	By cash, C. M. Terry, salary for Dec	27	100 00
Dec.	24.	By cash C. L. Herrick, salary for Dec.	28	75 00
Dec.	31.	By cash, B Quaritch, books,	38	174 92

1881.			No. Voucher.	
Jan.	21.	By cash, C. L. Herrick, ink, pens, &c......	60	1 65
Jan.	28.	By cash, O. E. Garrison, field work...	68	50 00
Jan.	31.	By cash, N. H. Winchell, salary for Jan....	69	200 00
Jan.	31.	By cash, Warren Upham, salary for Jan...	70	100 00
Jan.	31.	By cash, C. M. Terry, salary for Jan........	71	100 00
Jan.	31.	By cash, C. L. Herrick, salary for Jan......	72	75 00
Feb.	1.	By cash, N. H. Winchell, sundry expenses..	81	7 73
Feb.	1.	By cash, C. M. Terry, field expenses........	82	39 50
Feb.	28.	By cash, N. H. Winchell, salary for Feb...	108	200 00
Feb.	28.	By cash, W. Upham, salary for Feb........	109	100 00
Feb.	28.	By cash, C. L. Herrick, salary for Feb.....	110	75 00
Mar.	19.	By cash, J. W. Floyd, maps........	129	5 00
Mar.	21.	By cash, N. H. Winchell, sundry expenses.	138	4 05
Mar.	21.	By cash, N. H. Winchell sundry expenses..	139	8 25
Mar.	21.	By cash, C. W. Hall, traveling expenses, &c..	141	46 96
Mar.	31.	By cash, N. H. Winchell, salary for Mar...	146	200 00
Mar.	31.	By cash, W. Upham, salary for Mar.......	147	100 00
Mar.	31.	By cash, C. L. Herrick, salary for Mar.....	148	75 00
April	4.	By cash, C. M. Terry, half month services.	156	50 00
April	4.	By cash, S. M. Williams, vellum, &c.......	158	8 42
April	28.	By cash, C. W. Hall, sundry bills	185	11 10
April	30.	By cash, N. H. Winchell, salary for April.	189	200 00
April	30.	By cash, Warren Upham, salary for April.	190	100 00
April	30.	By cash, C. L. Herrick, salary for April ...	191	75 00
May	7.	By cash, N. H. Winchell, sundry bills, &c..	207	27 45
May	7.	By cash, N. H. Winchell, expenses to St. Paul.........	208	3 30
May	25.	By cash, Warren Upham, field expenses. .	218	7 50
May	30.	By cash, W. M. Howling, mounting birds..	221	48 00
May	30.	By cash, W. M. Howling, mounting birds..	222	7 00
May	31.	By cash, N. H Winchell, salary for May..	224	200 00
May	31.	By cash, Warren Upham, salary for May..	225	100 00
May	31.	By cash, C. L. Herrick, salary for May....	226	75 00
June	13.	By cash, N. H. Winchell, petty expenses..	263	20 51
June	15.	By cash, Jno. Mulliman, specimens.... ...	264	2 80
June	30.	By cash, Warren Upham, salary for June	281	100 00
July	5.	By cash, Whitall, Tatum & Co., mdse.....	304	189 10
July	6.	By cash, Lillian S. Todd, copying	307	9 50
July	6.	By cash, Hening & Kruckenberg, mdse....	309	6 00
Aug.	3.	By cash, N. H. Winchell, July salary.......	321	200 00
Aug.	11.	By cash, Jas. Keating, dressing stone.....	324	20 00
Aug.	11.	By cash, N. H. Winchell, petty bills..	325	5 11
Aug.	11.	By cash, N. H. Winchell, car fare, &c......	326	3 43
Aug.	11.	By cash, J. W. Kindred, buffalo skin......	328	12 00
Aug.	22.	By cash, R. H. Prosser, work in museum..	350	8 51
Sept.	1.	By cash, J. H. Paul, locks for museum case.	352	44 50
Sept.	5.	By cash, Warren Upham, salary for July..	358	100 00
Sept.	5.	By cash, C. L. Herrick, salary for June....	359	75 00
Sept.	5.	By cash, N. H. Winchell, salary for Aug...	360	200 00
Sept.	12.	By cash, N. H. Winchell, petty bills and express......................................	367	6 85
Sept.	12.	By cash, Jas. A. Dodge, analysis of mineral.	368	41 00
Sept.	13.	By cash, H. V. Winchell, services in field work.......................	372	40 00
Sept.	26.	By cash, Jas. Keating, dressing stone. ...	389	6 00
Sept.	26.	By cash, Jas Keating, dressing stone.....	390	7 00
Sept.	30.	By cash, N. H Winchell, Sept. salary......	391	200 00
Oct.	4.	By cash, N. H. Winchell, postage and expressage......................................	397	31 40

			No. Voucher.		
Oct.	4.	By cash, Thomas Cahill, abstract...........	402		5 00
Oct.	28.	By cash, S. M. Williams, merchandise.....	422		3 22
Nov.	1.	By cash, N. H. Winchell, salary for Oct...	425		200 00
Nov.	5.	By cash, W. Upham, expense in field work.	434		73 36
Nov.	8.	By cash, W. M. Howling, mounting animal.	439		26 25
Nov.	9.	By cash, N. H. Winchell, petty bills........	442		18 85
Nov.	14.	By cash, Warren Upham, salary for Aug. &c.	448		200 00
Nov.	19.	By cash, N. H. Winchell, salary for Nov...	457		200 00
Nov.	21.	By cash, F. B. Cornell, labor...	468		36 00
Nov.	26.	By cash, C. S. Sheldon, taking observations.	478		22 00
Nov.	30.	By cash, Warren Upham, salary for Nov..	480		100 00
		To balance to new account....................		$26,756 72	
				$26,756 72	$26,756 72

CHEMICAL LABORATORY.

Dr.

Mar.	14.	To cash, Jas. A. Dodge, on account....................	$285 97
July	27.	To cash, Jas. A. Dodge, on account....................	100 00
Nov.	7.	To cash, Jas. A. Dodge, on account....................	125 06

Cr.

1880.			No. Voucher.	
Dec.	3.	By cash, A. A. Pond, zinc, coal, &c.........	3	2 20
Dec.	15.	By cash, Geo. Huhn & Co., merchandise...	19	12 80
Dec.	23.	By cash, J. H. Paul, wall case..............	24	8 50
Dec.	24.	By cash, C. L. Sidener, asst for Dec........	32	15 00
1881.				
Jan.	13.	By cash, A. R. Miller, anvil, vice, &c.......	48	6 85
Jan.	20.	By cash, A. A. Pond, charcoal..............	50	6 10
Jan.	26.	By cash, E. B. Benjamin, merchandise.....	64	26 41
Jan.	31.	By cash, C. F. Sidener, assistant for Jan...	78	15 00
Feb.	25.	By cash, Noyes Bros. & Cutter, mdse.......	106	17 37
Feb.	28.	By cash, C. F. Sidener, Feb. services......	116	15 00
Mar.	18.	By cash, Noyes Bros. & Cutter, chemicals.	126	8 14
Mar.	19.	By cash, Elmore & Richards, merchandise.	131	9 05
Mar.	19.	By cash, Hagertis Bros. & Co., merchandise.	132	17 50
Mar.	19.	By cash, Sykes & Andrews, pipes, fitting, &c.	134	37 36
Mar.	31.	By cash, C. F. Sidener, mch services.......	154	15 00
April	4.	By cash, A. A. Pond, merchandise	157	4 50
April	4.	By cash, E. B. Benjamin, merchandise ...	162	20 84
April	30.	By cash, C. F. Sidener, April services.....	196	15 00
May	18.	By cash, Geo. Huhn & Co., merchandise...	213	9 85
May	31.	By cash, C. F. Sidener, May services	230	15 00
July	1.	By cash, C. F. Sidener, June services......	283	15 00
July	5.	By Cash, A. A. Pond, coal..	301	2 00
July	5.	By cash, Noyes Bros. & Co., merchandise.	303	7 71
July	19.	By cash, C. F. Sidener, services in full to July 1st....................	313	39 00
Sept.	6.	By cash, C. F. Sidener, July salary, as asst.	361	39 00
Sept.	12.	By cash, E. S. Kitchell, merchandise......	369	4 00
Sept.	13.	By cash, Geo. Huhn & Co., merchandise...	370	136 50
Sept.	16.	By cash, Elmore & Richards, merchandise.	383	36 20
Sept.	16.	By cash, E. B. Benjamin, merchandise....	384	182 52
Oct.	4.	By cash, J. W. Queen & Co, merchandise.	398	35 25
Oct.	4.	By cash, Bullock & Crenslaw, mdse......	401	45 42

			No. Voucher.		
Oct.	4.	By cash, C. F. Sidener, Sept. salary, as asst.	409		30 00
Nov.	1.	By cash, C. F. Sidener, Oct. salary, as asst.	428		30 00
Nov.	4.	By cash, Whitall, Tatum & Co., mdse.. ..	432		44 77
Nov.	14.	By cash, Jas. A. Taylor, material and labor.	446		131 72
Nov.	21.	By cash, Geo. Huhn & Co, merchandise...	459		4 45
Nov.	30.	By cash, C. F. Sidener, Nov. salary, as asst.	481		30 00
		To balance to current expense...........................		$635 52	
				$1,196 55	$1,196 55

APPARATUS ACCOUNT.

DR.

1881.			
Mar.	28.	To cash, C. W. Hall, on account, for use........	$50 00

CR.

			No. Voucher.		
1880.					
Dec.	2.	By cash, Smith & Nichols, merchandise...	2		5 80
Dec.	10.	By cash, R. & J. Beck, merchandise.......	10		162 15
1881.					
Jan.	14.	By cash, C. A. Bjorsell, labor on plates....	51		42 52
Jan.	14.	By cash, W. A. Pike, paid for drawing, &c.	52		8 90
Jan.	17.	By cash, Jno. H. Bara, for drawing........	56		9 60
Jan.	26.	By cash, American Steam Gauge Co., indicator, &c.............	65		94 50
Jan.	26.	By cash, Jas. W. Queen & Co., merchandise.	66		10 75
Jan.	26.	By cash, Gust E. Stechest, merchandise...	67		4 68
Feb.	12.	By cash, Kirkbridge & Co., merchandise...	102		27 56
Feb.	28.	By cash, C. A. Bjorsell, drawing	117		29 48
April	4.	By cash, Elmore & Richards, merchandise.	160		72 81
April	4.	By cash, R. & J. Beck, microscopic, &c....	161		122 16
April	28.	By cash, C. W. Hall, paid for reports, &c..	182		23 60
April	28.	By cash, C. W. Hall, coral, freight, &c.....	183		13 50
April	28.	By cash, J. P. Pyle, transit, level, &c......	186		175 00
Sept.	15.	By cash, S. J. McCarthy, tongs, shovels, &c.	378		100 00
Oct.	5.	By cash, Janney, Brooks & Co., mdse......	410		142 80
Oct.	7.	By cash, A. R. Miller, merchandise.........	416		182 14
Nov.	7.	By cash, J. H. Kerrick & Co., engine and boiler	436		475 00
Nov.	14.	By cash, Louis E. Fritche, iron tanks, &c...	449		147 25
Nov.	17.	By cash, H. F. Nachtrieb, services.........	454		1 28
Nov.	17.	By cash, American Tool and Machine Co., set of templates......	455		53 95
Nov.	21.	By cash, American Tool and Machine Co., merchandise................................	472		55 30
Nov.	30.	By cash, A. L. Stafford & Co., iron and labor	486		31 50
		To balance to current expense..		$1,942 52	
				$1,992 52	$1,992 52

ENLARGEMENT OF CAMPUS.

DR.

1881.		
April 16.	To cash, from State Treasurer	$10,000 00
June 10.	To cash, from State Treasurer	5,000 00
Aug. 9.	To cash, from State Treasurer	5,000 00

CR.

		No. Voucher.		
1881.				
Dec. 1.	By balance from old statement			$ 365 37
1880.				
April 22.	By cash, Jas. Cullen, 1 lot	176		$1,800 00
April 23.	By cash, J. S. Coughlin, 4 lots	179		1,550 00
May 4.	By cash, Jno. S. Pillsbury, 4 lots	204		1,350 00
May 14.	By cash, Wm Constans, undivided ½ 5 lots.	212		1,445 00
May 26.	By cash, J. W. Johnson, 4 lots	219		1,000 00
May 26.	By cash, Board of Education, 1 lot	220		200 00
June 8.	By cash, W. J. Davidson, undivided ½, 10 lots	238		1,607 50
July 18.	By cash, Steward, Hill & L., real estate	312		2,750 00
July 25.	By cash, J. S. Pillsbury, 1 lot	315		350 00
July 26.	By cash, W. Young, administrator fee to several lots	316		1,206 50
July 29.	By cash, J. B. Gilfillan, abstract	317		3 00
Aug. 5.	By cash, Jno. G. Lennon, undivided ½ of 3 lots	322		2 00
Aug. 5.	By cash, Jno. T. West, undivided ½ of 3 lots.	323		298 37
Aug. 11.	By cash, Abby E. Watson, heirs' interest in one lot	327		203 82
Aug. 15.	By cash, Elisha A. West, 1 lot	338		325 00
Aug. 15.	By cash, J. Guilford, tax title to 1 lot	339		14 45
Sept. 8.	By cash, J. N. House, 2 lots	362		736 94
Oct. 11.	By cash, J. Guilford, (assignee) interest in 10 lots	417		67 43
Oct. 12.	By cash, Jno. C. McCain, 1 lot	420		375 00
Nov. 8.	By cash, Mary A. Charles, part of 2 lots	440		153 00
	By balance on account		$4,196 62	
			$20,000 00	$20,000 00

INCIDENTAL ACCOUNT.

DR.

1881.		
Feb. 12.	To cash, telephone exchange	$ 15
Nov. 21.	To cash, Backus (books)	1 00

CR.

		No. Voucher.	
1880.			
Dec. 1.	By cash, W. C. Bryant, sundry bills	1	$15 80
Dec. 14.	By cash, James Jennison, writing	15	8 90
1881.			
Jan. 13.	By cash, James Jennison, writing	46	10 15
Jan. 14.	By cash, W. A. Pike, paid for expressage, &c	53	7 72
Feb. 2.	By cash, Jas. Jennison, writing	85	12 90

			No. Voucher.	
Feb.	3.	By cash, Telephone Ex. Co., Nov. rent	89	4 15
Feb.	3.	By cash, Telephone Ex. Co., Dec. rent	90	4 45
Feb.	12.	By cash, C., St. Paul, M. & O. R. R. Co., freight	93	3 09
Feb.	12.	By cash, C., M. & St. P. R. R. Co., freight	100	6 60
Feb.	12.	By cash, W. W. Folwell, expressage, freight, &c	101	16 82
Mar.	11.	By cash, Ball and Naylor, oil, &c	120	2 25
Mar.	18.	By cash, P. Phillips, Jr., office work	123	4 40
Mar.	18.	By cash, Hawes & Smith, merchandise	127	22 41
Mar.	18.	By cash, J. Jennison, writing	128	4 10
April	4.	By cash, Jas. Jennison, writing	159	18 50
April	12.	By cash, American Ex. Co., diplomas and express	174	35 75
April	28.	By cash, W. A. Pike, sundry bills	180	10 44
April	28.	By cash, C. W. Hall, sundry bills	184	13 89
May	2.	By cash, J. Jennison, writing, &c	200	15 50
May	12.	By cash, Telephone Ex. Co., Feb. rent	210	4 30
May	12.	By cash, Telephone Ex. Co., March rent	211	4 15
May	23.	By cash, W. A. Pike, expressage	215	3 20
May	24.	By cash, W. H. Leib, music	217	3 48
June	1.	By cash, J. Jennison, writing	237	15 10
June	9.	By cash. Telephone Ex. Co., Jan., April and May bills	257	13 50
June	10.	By cash, Jabez Brooks, petty expenses	261	7 15
June	16.	By cash, F. Danz, music	266	60 00
June	18.	By cash, J. Jennison, writing	267	10 60
June	24.	By cash, C. W. Benton, expenses in examinations	271	33 80
June	28.	By cash, C., St. P., M. & O. R. R. Co., freight.	272	2 06
June	28.	By cash, W. R. Hoage, drawing	273	17 30
June	28.	By cash. C., M. & St. P. R. R. Co., freight	275	5 60
June	28.	By cash, Hattie A. Smith, writing	277	3 44
June	28.	By cash, W. W. Folwell, petty expenses and bills	278	22 70
June	28.	By cash, W. W. Folwell, petty expenses and bills	279	5 74
June	29.	By cash, Maria L. Sanford, petty expenses and bills	280	21 00
July	1.	By cash, J. F. Downey, petty expenses and bills	286	40 05
July	2.	By cash, B. Phillips, office work	287	22 40
July	5.	By cash, Hawes & Smith, merchandise	306	9 85
Aug.	16.	By cash, W. R. Booth, dinner for regents	341	6 50
Aug.	16.	By cash, Kirkbridge, Wales & Co., mdse	342	12 50
Aug.	16.	By cash, C. W. Hall, freight, fare, &c	343	11 10
Aug.	16.	By cash, C. W. Hall, petty bills	344	4 47
Aug.	18.	By cash, Jno. S. Clark, car fare, &c	346	10 42
Aug.	18.	By cash, Woodward & Roswein, stakes	347	10 00
Sept.	1.	By cash, Johnson, Smith & Harrison, filling out diplomas	355	14 00
Sept.	2.	Telephone Ex. Co., June and July bill	357	8 15
Sept.	13.	By cash, Emily L. Hough, writing, &c	371	21 15
Sept.	15.	By cash, J. F. and W. C. Bryant, cleaning buildings	380	70 00
Sept.	24.	By cash, A. T. Ormond, petty bills and expenses	388	42 35
Oct.	1.	By cash, J. E. Gallow, soap, cham. skins, &c.	394	5 88
Oct.	6.	By cash, N. W. Telephone Co., Aug. bill	412	4 15
Nov.	3.	By cash, Jno. G. Moore, car fare, &c	431	24 27

			No. Voucher.		
Nov.	7.	By cash, Berry & Onion, merchandise.....	437		8 50
Nov.	16.	By cash, N. W. Telephone Co., Sept. bill...	451		4 45
Nov.	16.	By cash, N. W. Telephone Co., Oct. bill. .	452		4 00
Nov.	21.	By cash, G. J. Backus, office work...	461		3 15
Nov.	21.	By cash, C. M. Webster, writing...	463		7 80
Nov.	21.	By cash, C. M. Webster, writing	465		8 50
Nov.	21.	By cash, W. W. Folwell, petty bills........	470		60 40
Nov.	30.	By cash, R. Chute, petty bills..............	484		21 15
		To balance to current expenses........		$894 27	
				$895 42	$895 42

SALT LAND SALES.

Dr.

1880.				
Dec.	1.	To balance from last statement...........................	$8,426 08	
Dec.	10.	To amount received from First National Bank, Fergus Falls, being interest, to July 1st, 1881, on certificates issued	1,138 17	
Dec.	10.	To amount received of First National Bank of Fergus Falls, being amount in full, due on certificate No. 12. to B. Haavstrich, for the nw¼ ne¼ sec. 24, township 133, range 44	170 00	
1881.				
Jan.	26.	To interest, from L. L. Kalness........................	18 84	
June	28.	To interest, from J. J. Haggerman.....................	941 23	
July	13.	To interest, from G. B. & C. J. Wright..................	146 48	
July	25.	To interest, from J. Olson...............................	17 73	
Oct.	29.	To amount received from First National Bank, Fergus Falls, for interest collected to July 1st, 1882, on certificates issued..	1,009 36	
Nov.	10.	To amount received from First National Bank, Fergus Falls, interest from Tosten O. Moe..................	25 16	

Cr.

Nov.	30.	By balance, to new account............................	$11,893 05	
			$11,893 05	$11,893 05

LAND SALE FUND.

Dr.

1880.				
Dec.	1.	To balance, from last statement........................	$528 42	

Cr.

1881.				
Nov.	30.	By balance, to new account............................		$528 42

WATER SUPPLY.

DR.

1880.					
Dec.	1.	To balance, from last statement........................		$176 48	

CR.

			No. Voucher.		
1881.					
Feb.	1.	By cash, W. H. Chambers, water pipe, &c.	60		$112 25
April	11.	By cash, E. B. Preston & Co., hose fixtures.	173		161 30
Nov.	30.	To balance, to new account..........................		97 07	
				$273 55	$273 55

STUDENTS' FEES.

DR.

1881.				
Feb.	12.	To cash, received from W. W. Folwell, fees..	$70 00	
June	28.	To cash, received from W. W. Folwell, fees	15 00	
Sept.	29.	To cash, received from W. W. Folwell, fees............	500 00	
Nov.	21.	To cash, received from W. W. Folwell, fees............	5 00	
Nov.	21.	To cash, received from W. W. Folwell, fees............	340 00	
		By balance, to current expense account.....	$930 00	$930 00

HEATING AND FURNISHING, OLD ACCOUNT.

CR.

1880.				
Dec.	1.	By balance, from last statement........................	$300 53	

DR.

1881.				
Nov.	30.	To balance to new account..............................	$300 53	
			$300 53	$300 53

HEATING ACCOUNT.

DR.

1881.			
June	28.	To cash, 5 cords pine to Budds................	$10 00

CR.

			No. Voucher.		
1880.					
Dec.	14.	By cash, Armstrong & Truesdell, wood....	14		$698 88
Dec.	14.	By cash, Ball & Naylor, steam gauge......	18		5 50
Dec.	24.	By cash, W. H. Chambers, Dec. salary, as engineer..................................	34		35 00
1881.					
Jan.	14.	By cash, Armstrong & Truesdell, wood and coal..	55		408 06
Jan.	31.	By cash, W. H. Chambers, Jan. salary....	77		35 00
Feb.	2.	By cash, T. E. Trussell, hauling wood	88		9 53
Feb.	12.	By cash, T. E. Trussell, hauling wood.....	98		6 23
Feb.	16.	By cash, Armstrong & Truesdell, coal and wood..	103		199 04
Feb.	28.	By cash, W. H. Chambers, Feb. salary....	114		35 00
Mar.	31.	By cash, W. H. Chambers, March salary...	152		35 00
April	5.	By cash, J. A. Townsend, hauling wood, &c.	165		21 00
April	30.	By cash, W. H. Chambers, April salary...	194		35 00
April	30.	By cash, Armstrong & Truesdell, wood and coal..	198		96 25
May	31.	By cash, W. H. Chambers, May salary....	232		35 00
May	31.	By cash, Ball & Naylor, Bronze tongs.....	233		3 50
July	2.	By cash, W. H. Chambers, June Salary....	299		35 00
July	6.	By cash, C. Bicknell, mason work.........	308		36 45
Aug.	11.	By cash, Armstrong & Truesdell, wood....	330		1,317 75
Aug.	22.	By cash, W. H. Chambers, extra labor....	349		50 00
Nov.	12.	By cash, W. H. Chambers, month service.	445		52 00
Nov.	25.	By cash, Armstrong & Truesdell, wood and coal.......	476		272 50
		To balance to current expense account		$3,411 69	
				$3,421 69	$3,421 69

BUILDING ACCOUNT.

DR.

1880.			
Dec.	1.	To amount, from old statement........................	$6,291 10

CR.

			No. Voucher.		
1881.					
Nov.	23.	By cash, H. Downs, stone and labor.......	475		$174 77
		By balance to new account............................			6,116 33
				$6,291 10	$6,291 10

FURNITURE.

		Dr.			
1881.					
Nov.	21.	To cash, Bryant, for stove		$5 00	
		Cr.			
1880.			No. Voucher.		
Dec.	14.	By cash, Wheaton, Reynolds & Co., drawing tables	17		$46 50
1881.					
Jan.	8.	By cash, Folds & Griffith, merchandise	42		10 93
Feb.	4.	By cash, Wheaton, Reynolds & Co., book case, &c	91		40 00
Feb.	4.	By cash, J. S. Eeckman, reading desk	92		18 20
Feb.	16.	By cash, Gallison & Gowen, stepladder	104		2 45
April	28.	By cash, R. S. Jones, work on directory	188		5 80
July	5.	By cash, Barnard & Cope, use of chairs	302		12 00
July	19.	By cash, De Coster & Clark, merchandise	314		45 00
Aug.	18.	By cash, Folds & Griffith, matting	348		15 36
Sept.	15.	By cash, W. W. Parker, frame and glass	379		11 85
Nov.	10.	By cash, Leonard, Thompson & Bates, flag	444		35 00
Nov.	14.	By cash, Folds & Griffith, merchandise	447		9 75
Nov.	26.	By cash, Weeks, Littlefield & B., chandeliers	447		14 22
		To balance to current expense account		$262 06	
				$267 06	$267 06

EXPERIMENTAL FARM FUND.

		Dr.		
1880.				
Dec.	1.	To balance from old statement	$671 87	
		Cr.		
1881.				
Nov.	30.	By balance to new account	$671 87	
			$661 87	$671 87

FRUIT FARM.

		Cr.			
1881,			No. Voucher.		
Oct.	26.	By cash, P. M. Gideon, labor	421	$73 00	
		Dr.			
Nov.	30.	To balance to current expense		$73 00	
				$73 00	$73 00

II.

TREASURER CHUTE'S REPORT FOR DEC. 1881, AND TO JAN. 16TH., 1882.

Richard Chute, *Treasurer, in account with the University of Minnesota.*

CURREET EXPEFSE.

	Dr.		
1881.			
Dec. 1.	To balance from last statement	$4,125 01	
Dec. 16.	To cash from State Treasurer	5,000 00	
1882.			
Jan. 5.	To cash from State Treasurer	1,000 00	
	Cr.		
Jan. 16	By balance, heating account		$ 156 00
Jan. 16.	By balance, experimental Farm and Campus		373 27
Jan. 16.	By balance, incidental account		115 92
Jan. 16.	By balance, library account		416 13
Jan. 16.	By balance, repairs account		416 51
Jan. 16.	By balance, salaries for instruction account		3,220 00
Jan. 16.	By balance, employees and workmen account		146 50
Jan. 16.	By balance, plant house account		6 00
Jan. 16.	By balance, printing, stationery, etc		121 50
Jan. 16.	By balance, chemical laboratory account		54 85
Jan. 16.	By balance, apparatus account		835 26
Jan. 16.	By balance, amount carried to new account		4,263 07
		$10,125 01	$10,125 01

SALARIES FOR INSTRUCTION.

	Cr.			
1881.		No. Voucher.		
Dec. 31.	By cash, salaries for instruction for Dec.	528		$ 2,970 00
1882.				
Jan. 6.	By cash, W. W. Folwell (house rent)	538		250 00
	Dr.			
Jan. 16.	To balance to current expense account		$3,220 00	
			$3,220 00	$3,220 00

EMPLOYEES AND WORKMEN.

	Cr.			
1881.		No. Voucher.		
Dec. 14.	By cash, J. E. Gallow, sweeping	513		$16 00
Dec. 24.	By cash, A. H. Nunn, Dec. salary Janitor	522		27 00
Dec. 24.	By cash, J. E. Gallow, Dec. salary, Janitor	525		50 00
1882.				
Jan. 12.	By cash, J. E. Gallow, sweeping	551		16 00
Jan. 16.	By cash, R. Chute, services	561		37 50
Jan 16.	To balance to current expense account		$146 50	
			$146 50	$146 50

EXPERIMENTAL FARM AND CAMPUS

CR.

		No. Voucher.		
1881				
Dec. 5.	By cash, E. D. Porter, labor pay roll for Nov...	494		$189 80
Dec. 6.	By cash, W. Grimshaw, carpenter work........	499		6 00
1882.				
Jan. 3.	By cash, E. D. Porter, labor pay roll for Dec...	529		165 62
Jan. 6.	By cash, A. R. Miller, merchandise............	536		11 85
Jan. 16.	To balance carried to current expense....................		$373 27	
			373 27	373 27

PLANT HOUSE.

CR.

		No. Voucher.		
1881.				
Dec. 6.	By cash, W. Grimshaw, carpenter work..... ...	500		$6 00
1882.				
Jan. 16.	To balance to current expense account.....		$6 00	
			$6 00	$6 00

LIBRARY ACCOUNT.

CR.

		No. Voucher.		
1881.				
Dec. 6.	By cash, A. C. Bausman, binding............, ...	501		$125 30
Dec. 24.	By cash, Geo. H. Keith, books P. order	523		148 33
Dec. 24.	By cash, C. A. Rollit, Dec. salary................	524		50 00
1882.				
Jan. 12.	By cash, Mrs. J. Swain, books	550		72 75
Jan. 12.	By cash, Smith & Nichols, books................	557		16 25
Jan. 12.	By cash, A. C. Bausman, covering books	560		3 50
Jan. 16.	To balance carried to current expense account		$416 13	
			$416 13	$416 13

INCIDENTALS.

CR.

		No. Voucher.		
1880.				
Dec. 5.	By cash C. M. Webster, writing...............	495		$ 6 60
Dec. 6.	By cash Ed. Hammon, dinner for Regents	496		6 65
Dec. 10.	By cash N. W. Telephone Ex. Co., Nov. bill	507		4 00
Dec. 12.	By cash Chas. Henry, merchandise	511		1 00
Dec. 20.	By cash J. C. Hutchinson, travelling expenses..	514		12 42
1882.				
Jan. 5.	By cash Berry & Onion, merchandise .... ,....	531		14 25
Jan. 9.	By cash B. Brown, carriage....	542		4 00
Jan. 12,	By cash N. W. Telephone Co., Dec. bill,.........	552		4 00
Jan. 12.	By cash S. B. Ramsley. dinner for Regents......	555		12 00
Jan, 12.	By cash J. S. Pillsbury, A. J. Edgerton's expenses....................	556		51 00
Jan. 16.	To balance carried to current expense account........ ..		$115 92	
			$115 92	$115 92

GEOLOGICAL SURVEY.

CR.

		No. Voucher.		
1881.				
Dec. 1.	By balance from last statement.................			$26,756 72
Dec. 20.	By cash W. Upham, field expenses..............	515		3 81
Dec. 21.	By cash C. S. Sheldon, taking observations.....	516		4 00

		No. Voucher.		
Dec. 21.	By cash N. H. Winchell, petty bills expenses...	519		14 50
Dec. 23.	By cash N. H. Winchell, salary for Dec.........	520		200 00
Dec. 23.	By cash W. Upham, salary for Dec..............	521		100 00
1882.				
Jan. 9.	By cash C. E. Young, printing....	543		4 75
Jan. 16.	To balance to new account....................		$27,115 78	
			$27,115 78	$27,115 78

REPAIRS.

Cr.

		No. Voucher.		
1881.				
Dec. 6.	By cash W. Grimshaw, carpenter work..........	498		$ 9 00
Dec. 7.	By cash Roseveare & Co., pipes, &c.............	504		100 48
Dec. 7.	By cash Hagan Kelly, labor......................	505		131 51
Dec. 21.	By cash Merriman B. & Co., flag staff............	518		4 80
1882.				
Jan. 6.	By cash M. Lyons, plastering &c.....	537		12 37
Jan. 9.	By cash Gallison & Gowen, merchandise........	541		1 10
Jan. 10.	By cash Wheaton, Reynolds & Co , floor, &c....	544		116 60
Jan. 11.	By cash J Patterson, mason work	549		15 50
Jan. 11.	By cash Nelson, Tenney & Co., lumber..........	553		16 50
Jan. 11.	By cash Farnham & Lovejoy, lumber	554		8 65
Jan. 16.	To balance to account current expense.		$416 51	
			$416 51	$416 51

PRINTING, STATIONERY, ADVERTISING, POSTAGE.

Cr.

		No. Voucher.		
1881.				
Dec. 7.	By cash Ariel Association, advertising....	502		30 00
Dec. 7.	By cash Fargo Republican, advertising.........	506		60 00
Dec. 21.	By cash Henning Kruekeburg, printing,....	517		6 50
Dec. 30.	By cash Minn. Education'l Journal, advertising.	527		25 00
1881.				
Jan. 16.	To balance to account current expense.........		$121 50	
			$121 50	$121 50

HEATING.

Cr.

		No. Voucher.		
1881.				
Dec. 12.	By cash W. H. Chambers, Nov. salary....	510		52 00
1882.				
Jan. 11.	By cash W. H. Chambers, Sept. salary...........	547		52 00
Jan. 11.	By cash W. H. Chambers, Dec. salary....... ...	548		52 00
Jan. 16.	To balance to account current expense.........		$156 00	
			$156 00	$156 00

CHEMICAL LABORATORY.

Cr.

		No. Voucher.		
1881.				
Dec. 5.	By cash Geo. Huhn, merchandise	493		24 85
Dec. 24.	By cash C. F. Sidener, Dec. salary...............	526		30 00
1882.				
Jan. 16.	To balance to current expense account.........		$54 85	
			$54 85	$54 85

HEATING AND FURNISHING, OLD ACCOUNT.

	Cr.		
1881.			
Dec. 1.	By balance from last statement		$300 53
	Dr.		
1882.			
Jan. 16.	To balance to new account	$300 53	
		$300 53	$300 53

BUILDING ACCOUNT.

	Dr.			
1881.				
Dec. 1.	To balance from last statement		$6,116 33	
	Cr.			
1881.		No. Voucher.		
Dec. 6.	By cash, W. Grimshaw, addition to plant house	497		$ 162 50
Dec. 13.	By cash, Smith, Parker & Co., lumber	512		79 14
1882.				
Jan. 5.	By Hitchings & Co., pipes, valves, &c.	532		140 00
Jan. 10.	By George Gray, material and labor	546		98 92
Jan. 16.	By M. O'Brien, balance account due on work	562		25 00
	By balance to new account			5,610 77
			$6,116 33	$6,116 33

EXPERIMENTAL FARM FUND.

	Dr.		
1881.			
Dec. 1.	To balance from last statement	$671 87	
	Cr.		
1882.			
Jan. 16.	By balance to new account		$671 87
		$671 87	$671 87

SALT LAND SALES.

	Dr.		
1881.			
Dec. 1.	To balance from last statement		$11,893 05
1882.			
Jan. 16.	To cash, amount received of J. S. Pillsbury as paid on building to M. O'Brien		25 00
	Cr.		
Jan. 16.	By balance to new account	$11,918 05	
		$11,918 05	$11,918 05

LAND SALE FUND.

	Dr.		
1881.			
Dec. 1.	To balance from last statement	$528 42	
	Cr.		
1882.			
Jan. 16.	By balance to new account		$528 42
		$528 42	$528 42

WATER SUPPLY ACCOUNT.

	CR.		
1881.			
Dec. 1.	By balance from last statement...		$ 97 07
	DR.		
Dec. 16.	To cash from State Treasurer	$500 00	
1882.			
Jan. 16.	By balance to new account		$402 93
		$500 00	$500 00

ENLARGEMENT OF CAMPUS.

	DR.		
1881.			
Dec. 1.	To balance from last statement	$4,196 62	
	CR.		
1882.			
Jan. 16.	By balance carried to new account		$4,196 62

APPARATUS.

		No. Voucher.		
	CR.			
1881.				
Dec. 5.	By cash, W. F. Decker, petty bills and expenses	491		$ 11 97
Dec. 5.	By cash, W. F. Decker, freight	492		8 55
Dec. 7.	By cash, A. R. Miller, merchandise	503		36 00
Dec. 10.	By cash, F. H. Brown, labor	508		8 55
Dec. 12.	By cash, B. B. Marshall, mdse and labor	509		7 00
1882.				
Jan. 4.	By cash, Sykes & Andrews, pipe, valves, &c...	530		437 11
Jan. 5.	By cash, New England School Furniture Co., merchandise	533		30 00
Jan. 5.	By cash, A. A. Pond, furnaces, &c	534		183 91
Jan. 6.	By cash, A. R. Miller, merchandise	535		16 00
Jan. 9	By cash, W A Pike, sundry bills	539		18 10
Jan. 9.	By cash, Gallison & Gowen, merchandise	540		60 00
Jan. 10.	By cash, J. A Tyler, labor	545		14 00
Jan. 12.	By cash, North Star Iron Works, castings	558		6 25
Jan. 12.	By cash, A. R. Miller, merchandise,	559		5 00
	DR.			
1881.				
Dec. 6.	To cash received of Prof. Hall for use of apparatus		$ 7 18	
1882.				
Jan. 16.	To balance to Current Expense Account		835 26	
			$842 44	$842 44

III.

TREASURER DAVISON'S REPORT FOR 1882, COMMENCING JAN. 16TH, 1882.

ROBERT A. DAVISON, *Treasurer, in account with the University of Minnesota:*

CURRENT EXPENSE.

DR.

1882.				
Jan.	16.	To balance from last statement of R. Chute............	$4,263 07	
Jan.	30.	To cash, from State Treasurer..........................	5,000 00	
Feb.	25.	To cash, from State Treasurer..........................	5,000 00	
Mar.	30.	To cash, from State Treasurer..................	4,500 00	
May	4.	To cash, from State Treasurer..........................	5,000 00	
May	31.	To cash, from State Treasurer..........................	4,500 00	
June	8.	To cash, from State Treasurer..........................	4,500 00	
July	3.	To cash, from State Treasurer..........................	3,000 00	
Sept.	29.	To cash, from State Treasurer..........................	8,273 90	
Nov.	4.	To cash, from State Treasurer	4,107 51	
Nov.	30.	To balance from students' fees account............ ...	1,010 45	
		CR.		
Nov.	30.	By balance, from apparatus account............... ...		$678 76
Nov.	30.	By balance, from chemical laboratory account......		611 54
Nov.	30.	By balance, from College of agriculture account......		3,613 90
Nov.	30.	By balance, from experimental farm fund account....		689 77
Nov.	30.	By balance, from experimental farm and campus act..		989 90
Nov.	30.	By balance, from employees and workmen account...		3,420 00
Nov.	30.	By balance, from furniture account		22 26
Nov.	30.	By balance, from heating account......................		1,133 97
Nov.	30.	By balance, form incidental account.........		2,237 47
Nov.	30.	By balance, from library account......................		1,494 54
Nov.	30.	By balance, from plant house account.................		140 68
Nov.	30.	By balance, from repairs account		451 94
Nov.	30.	By balance. from salaries for instruction account.....		28,205 00
Nov.	80.	By balance, from stationery, postage, &c., account.. .		24 50
Nov.	39.	By balance, from Prof. Pike's book.....................		109 85
Nov.	39.	By balance, carried to new account....		5,330 85
			$49,154 93	$49,154 93

SALARIES FOR INSTRUCTION.

CR.

1882.			No. Voucher.	
Feb.	1.	By cash, faculty pay roll for Jan...........	38 to 54	$2,970 00
Feb.	28.	By cash, W. H. Leib, instruction...........	29	60 00
Feb.	28.	By cash, faculty pay roll for Feb...........	66	2,970 00
Mar.	31.	By cash, faculty pay roll for March.........	98	2,970 00
May	5.	By cash, faculty pay roll for April..... ...	103	2,970 00
May	30.	By cash, faculty pay roll for May..........	147	2,970 00
June	30.	By cash, faculty pay roll for June....	164	2,970 00

			No. Voucher.		
Sept.	16.	By cash, Moses Marston, instruction.......	165		5 00
Aug.	1.	By cash, E. D. Porter, salary................	172		200 00
Aug.	31.	By cash, E. D. Porter, salary.............. ..	173		200 00
Sept.	29.	By cash, faculty pay roll for Sept..........	205		3,000 00
Oct.	31.	By cash, faculty pay roll for Oct...........	212		3,000 00
Oct.	10.	By cash, H. M. Wait, instruction in civil engineering.........	200		85 00
Nov.	15.	By cash, H. M. Waitt, instruction in civil engineering..................	226		85 00
Nov.	15.	By cash, E. D. Porter, (house rent)	225		650 00
Nov.	29.	By cash, faculty pay roll for Nov....	229		3,100 00
Nov.	30.	To balance carried to current expense account........		$28,205 00	
				$28,205 00	$28,205 00

EMPLOYEES AND WORKMEN.

Cr.

1882.			No. Voucher.		
Feb.	4.	By cash, C. A. Rollit, assistant librarian...	57		50 00
Feb.	6.	By cash, W. H. Chambers, fireman.........	58		52 00
Feb.	4.	By cash, J. E. Gallow, janitor..............	59		64 00
Feb.	4.	By cash, A. H. Nunn, assistant janitor ...	60		27 00
Feb.	28.	By cash, pay roll for Feb	66		225 00
Feb.	28.	By cash, pay roll for Feb....	66		110 00
Mar.	29.	By cash, C. F. Sidener, assistant chemical laboratory, (Jan.)........	71		30 00
Mar.	31.	By cash, pay roll for March	98		335 00
May	5.	By cash, pay roll for April........	103		335 00
May	30.	By cash, pay roll for May.......	147		335 00
June	28.	By cash, pay roll for June..................	164		335 00
Aug.	7.	By cash, pay roll for July..................	172		185 00
Sept.	4.	By cash, pay roll for Aug.......	173		185 00
Sept.	29.	By cash, pay roll for Sept.................	205		325 00
Oct.	31.	By cash, pay roll for Oct....................	212		400 00
Nov.	29.	By cash, pay roll for Nov.	229		425 00
		To balance carried to current expense account........		$2,420 00	
				$2,420 00	$2,420 00

APPARATUS ACCOUNT.

Cr.

1882.			No. Voucher.	
Feb.	25.	By cash, Ball & Naylor, merchandise.....	18	7 50
Feb.	28.	By cash, S. J. McCarthy, chisels.......... .	19	13 20
Feb.	28.	By cash, Littlefield & Son, pipe, &c........	20	5 13
Feb.	27.	By cash, W. F. Decker, petty bills.........	21	16 59
Feb.	27.	By cash, J. S. McClary, lumber............	22	4 00
Feb.	13.	By cash, F. H Brown, material and labor	61	53 90
Feb.	25.	By cash, Jas W Queen & Co., mdse......	68	120 89
Mar.	30.	By cash, Jno. G Moore, statuary and mounting........................	72	33 46
Mar.	30.	By cash, Jewett & Co., merchandise.......	84	30 00
April	3.	By cash, Reed & Johnson, material and labor.................................	89	55 00
April	1.	Ball & Naylor, oil and can.................	90	3 10
April	3.	By cash, E. and J. B. Young & Co., books	94	38 40
May	9.	By cash, A. R. Miller, merchandise........	111	1 83
May	9.	By cash, Jas. W. Queen & Co., mdse... ..	112	35 00
May	9.	By cash, C. Ginochio, bust.................	113	4 75
May	12.	By cash, S. J. McCarthy, merchandise....	117	4 00

			No. Voucher.		
May	9.	By cash, R. J. Beck, merchandise..........	118		150 20
July	6.	By cash, Wales & Co., picture and frame...	119		11 75
July	14.	By cash, W. H. Leib, services.............	155		90 00
		To balance carried to current expense.................		$678 76	
				$678 76	$678 76

BUILDING ACCOUNT.

DR.

1882.				
Jan.	16.	To balance from the last statement...........	$5,610 77	

CR.

Dec.	1.	By balance to new account.................. .		5,610 77
			$5,610 77	$5,610 77

CHEMICAL LABORATORY.

CR.

1882.			No. Voucher.		
Feb.	25.	By cash, Geo. Huhn & Co., mdse	13		25 56
April	11.	By cash, Geo. Huhn & Co., mdse	82		13 20
May	6.	By cash, L. M. Reid, labor	105		1 65
June	7.	By cash, G. Huhn & Co., mdse.	132		19 09
June	7.	By cash, G. Huhn & Co., mdse..............	133		23 18
June	8.	By cash, Jas. A. Dodge, labor...............	134		37 50
June	9.	By cash, Littlefield & Son	135		19 20
June	10.	By cash, E. B. Benjamin, mdse..........	136		19 00
June	13.	By cash, Jas. W. Queen & Co., mdse....	137		26 50
July	5.	By cash, Geo. Huhn & Co., mdse..............	157		5 30
Sept.	14.	By cash, Whitall, Tatum & Co., mdse	167		35 30
Oct.	26.	By cash, E. & J. B. Young & Co., mdse........	177		157 74
Oct.	27.	By cash, Geo. Huhn & Co., mdse....	192		88 45
Oct.	20.	By cash, Richards & Co., mdse...............	193		61 26
Oct.	20.	By cash, E. B. Benjamin, mdse...............	206		88 09
Oct.	20.	By cash, E. B. Benjamin, mdse	207		4 02
Oct.	26.	By cash, Bullock & Crenshaw, mdse	208		144 21

DR.

Nov.	29.	To cash from E. & J. B. Young & Co., sent in error.....	$157 74	
Nov.	30.	To balance carried to current expense account.........	611 54	
			$769 28	$769 28

ENLARGEMENT OF CAMPUS.

DR.

1882.				
Jan.	16.	To balance from last statement.......................	$4,196 62	

CR.

			No. Voucher.		
Feb.	3.	By cash, I. E. Atherton, 1 lot.....................	67		$75 00
Mch.	29.	By cash, Jno. G. Lennon, tax title 1 lot	93		3 50
Apr.	17.	By cash, N. D. Plummer, tax title 1 lot.........	97		50 00
May	4.	By cash, J. Guilford, tax title 10 lots...........	99		18 08
June	30.	By cash, E. B. Clement, 3 lots....................	151		356 25
June	30.	By cash, Edith J. Wilson, 1 lot...........	152		25 00
June	30.	By cash, Young & Fessenden, 1 lot............	153		366 23
June	30.	By cash, E. O. Leonard, 2 lots....................	154		175 00
		To balance to new account.. ,..................			3,127 56
				$4,196 62	$4,196 62

COLLEGE OF AGRICULTURE.

CR.

1882.		No. Voucher.		
Mch. 10.	By cash, E. D. Porter, labor pay roll for Feb....	37		85 00
Feb. 14.	By cash, E. D. Porter, labor pay roll for Jan....	64		202 60
Feb. 14.	By cash, E. D. Porter, cash paid petty bills, etc.	65		189 47
Mch. 27.	By cash, E. D. Porter, labor pay roll for March.	78		60 27
April 4.	By cash, A. R. Miller, glass, etc	88		100 00
May 6.	By cash, E. D. Porter, labor pay roll for April..	108		254 83
June 10.	By cash, E. D. Porter, labor pay roll for May. .	142		540 00
June 30.	By cash, E. C. Cauvett, pipe fittings and labor..	143		578 52
Aug. 1.	By cash, Jno. Schulte, mdse..........	144		116 25
July 7.	By cash, E. D. Porter, labor pay roll for June..	167		643 58
Nov. 29.	By cash, E. D. Porter, petty bill and expenses at State Fair...	227		122 12
Nov. 29.	By cash, E. D. Porter, expense at farmers' lecture course	228		721 26
	To balance to current expense account........		$3,613 90	
			$3,613 90	$3,613 90

EXPERIMENTAL FARM FUND.

CR.

1882.		No. Voucher.		
June 30.	By cash Wm. A. Pike, platting and surveying...	163		$308
Sept. 22.	By cash, E. D. Porter, labor pay roll for Aug.	170		490 77
Oct. 27.	By cash, Geo. Huhn & Co., mdse.....	178		5 60
Oct. 18.	By cash, G. W. Sturtevant, surveying, &c...	197		144 25
Nov. 8.	By cash, Geo. W. Chowen & Co. abstract...	210		15 50
Nov. 15.	By cash, E. D. Porter, labor pay roll for Oct.	224		397 52

DR.

Jan. 16.	To balance from last statement..........................	$671 87	
Nov. 30.	To balance carried to current expense..................	689 77	
		$1,361 64	$1,361 64

EXPERIMENTAL FARM AND CAMPUS.

CR.

1882.		No. Voucher.		
Feb. 25.	By cash, W. Q. Greeley, blacksmithing.....	25		$25 35
	By cash, Merriman B. & Co., lumber.........	26		11 21
Aug. 9.	By cash, E. D. Porter, labor pay roll for July	196		564 92
Oct. 14.	By cash, E. D. Porter, labor pay roll for Sept.	198		388 42
Nov. 30.	To balance carried to current expense..................		$989 90	
			$989 90	$989 90

FURNITURE.

CR.

1882.		No. Voucher.		
Mar. 27.	By cash, Wheaton, Reynolds & Co., to case of drawers.................................	74		$22 26

DR.

Nov. 30.	To balance carried to current expense..................	$22 26	
		$22 26	$22 26

GEOLOGICAL SURVEY.

CR.

1882.			No. Voucher.		
Jan,	16.	By balance from last statement			$27,115 78
Feb.	14.	By cash, Jas. Keating, testing stone	23		39 00
Feb.	27.	By cash, N. M. Baker, labor	24		4 50
Mch.	4.	By cash, S. M. Williams, book	31		3 25
Feb.	15.	By cash, N. H. Winchell, salary for Jan	55		200 00
Feb.	8.	By cash, W. Upham, salary for Jan	56		100 00
Feb.	27.	By cash, N. H. Winchell, petty bills	63		24 09
Feb.	28.	By cash, pay roll for Feb.	66		300 00
March	27.	By cash, N. H. Winchell, petty bills & freight	76		24 60
April	6.	By cash, Warner & Foote, maps	83		51 00
March	31.	By cash, Empire Distilling Co., alcohol	87		28 80
March	31.	By cash, pay roll for March	98		300 00
May	4.	By cash, Wheaton, Reynolds & Co., lumber	100		16 00
May	5.	By cash, pay roll for April	103		300 00
May	5.	By cash, N. H. Winchell express & copying	104		11 53
June	1.	By cash, Driscoll & Forsyth, repair'g. wagon	123		16 25
June	7.	By cash, W. Howling mounting animals	124		18 90
May	30.	By cash, pay roll for May	147		300 00
July	3.	By cash, N. H. Winchell, petty bills	158		10 19
June	30.	By cash, pay roll June	161		300 00
Aug.	7.	By cash, W. Upham for July	172		100 00
Sept.	8.	By cash, N. H. Winchell for July	172		200 00
Sept.	29.	By cash, W. Upham, for August	173		100 00
Oct.	23.	By cash, R. & J. Beck, mdse	174		19 00
Nov.	1.	By cash, N. H. Winchell, traveling expenses	175		72 46
Sept.	29.	By cash, pay roll for Sept	205		300 00
Oct.	31.	By cash, pay roll for Oct	212		300 00
Nov.	13.	By cash, Arnell & Christliet, labor	213		3 65
Sept.	14.	By cash, Gen. Q. A. Gilmore, services & fght.	223		6 27
Nov.	29.	By cash, pay roll for Nov	229		300 00
Nov.	30.	To balance carried to new account		$30,565 27	
				$30,565 27	$30,565 27

HEATING.

CR.

1882.			No. Voucher.		
Jan.	16.	By balance, from last statement			$300 53
Feb.	23.	By cash, Brand & Reichard, repairs on engine	27		16 63
Feb.	24.	By cash, Armstrong & Truesdell, wood and coal	28		249 03
April	5.	By cash, Brand & Reichard, merchandise.	86		14 58
May	11.	By cash, Armstrong & Truesdell, wood and coal	116		129 75
Sept.	25.	By cash, M. W. Glenn, material and labor.	171		83 45
Oct.	9.	By cash, C. A. Bicknell, mason work	179		29 25
Oct.	6.	By cash, Brand & Reichard, fire, brick, &c.	180		10 75
July	26.	By cash, Armstrong & Truesdell, wood and coal	195		300 00
		To balance, carried to current expense		$1,133 97	
				$1,133 97	$1,133 97

LIBRARY.

Cr.

1882.			No. Voucher.		
Feb.	13.	By cash, Geo. H. Keith, P. O. orders for merchandise....	1		$57 79
Feb.	28.	By cash, E. & J. B. Young & Co, books....	10		$206 00
Feb.	28.	By cash, Gust E. Stechert, merchandise...	11		4 68
Feb.	28.	By cash, J. K. Moore, binding and printing.	12		235 65
Mar.	27.	By cash, Wheaton, Reynolds & Co., shelves.	75		9 00
Mar.	31.	By cash, Gust E. Stechert, merchandise .	80		1 11
April	3.	By cash, E. & J. B. Young & Co., books.....	95		193 48
May	9.	By cash, E. & J. B. Young & Co., books.. ..	110		182 68
June	7.	By cash, C. A. Bausman, binding..........	138		66 00
June	21.	By cash, E. & J. B. Young & Co., books....	139		201 74
June	17.	By cash, E. & J. B. Young & Co., books.....	140		69 15
Aug.	25.	By cash, St. Paul Book & Stationery Co., books..........	141		4 50
Oct.	26.	By cash, E. & J. B. Young & Co., books....	221		156 23
Oct.	30.	By cash, E. & J. B. Young & Co., books....	222		106 53
		To balance carried to current expense.........		$1,494 54	
				$1,494 54	$1,494 54

LAND SALE FUND.

Dr.

1882.				
Jan.	16.	To balance, from last statement........................	$528 42	

Cr.

Nov.	30.	By balance, carried to new account....................	$528 42	
			$528 42	$528 42

PLANT HOUSE ACCOUNT.

Cr.

1882.			No. Voucher.		
Feb.	25.	By cash, Sykes & Andrews, merchandise and labor	5		77 14
Feb.	25.	By cash, Farnham & Lovejoy, lumber.....	6		46 39
Feb.	25.	By cash, Chas. Henry, merchandise.......	7		17 15

Dr.

Nov.	30.	To balance, carried to current expense..................		$140 68	
				$140 68	$140 68

REPAIRS.

Cr.

Feb.	24.	By cash, T. H. Hagen, labor.....	4		26 87
Feb.	28.	By cash, J. E. Gallow, bill paid for labor...	14		13 50
Feb.	25.	By cash, M. W. Glenn, labor..............	15		8 85
Feb.	27.	By cash, Nelson, Tenney & Co., lumber ...	16		77 53
Feb.	25.	By cash, Geo. Huhn & Co., paint and oils..	17		12 78
Mar.	2.	By cash, Geo. Huhn & Co., merchandise...	30		38 20
Mar.	27.	By cash, Wheaton, Reynolds & Co., lumber.	75		1 56
Mar.	27.	By cash, Nelson, Tenney & Co., lumber....	77		62
April	11.	By cash, Geo. Huhn & Co., merchandise...	81		11 78
Mar.	29.	By cash, J. E. Gallow, petty bills	92		3 95
May	6.	By cash, Janney, Brooks & Co., mdse......	107		117 60
May	6.	By cash, Nelson, Tenney & Co., lumber...	109		60 07

June	21.	By cash, Gallison & Gowen, labor	145		2 25
June	6.	By cash, Wales & Co., screens, &c	146		26 70
July	18.	By cash, Geo. Gray, painting	156		6 75
Oct.	27.	By cash, Geo. Huhn & Co., paint and oils	182		39 93
Nov.	30.	To balance, carried to current expense		$451 94	
				$451 94	$451 94

INCIDENTALS.

Cr.

188-			No. Voucher.	
Feb.	28.	By cash, St. Paul Dispatch, advertising	2	$11 00
Feb.	24.	By cash, Review Pub. Co., advertising	3	3 00
Feb.	25.	By cash, Berry & Onion, Mdse	8	13 35
Feb.	28.	By cash, Hermean Soc., use of piano	9	6 00
Mar.	7.	By cash, N. W. Telephone Ex. Co., Jan. bill	32	4 00
Mar.	8.	By cash, C. St. P. M. & O. R. R. Co., print'g.	33	2 25
Mar.	8.	By cash, Evening Journal, advertising	34	9 75
Mar.	8.	By cash, Tribune Building, postal cards	35	6 00
Mar.	8.	By cash, W. S. Pardee, stove pipe & zinc	36	7 50
Feb.	28.	By cash, C. M. Webster, office work	62	17 90
Mar.	20.	By cash, Cushman & Plummer, mdse	69	7 40
Mar.	28.	By cash, R. A. Davison, petty expenses	70	5 50
Mar.	31.	By cash, Burdick & Armitage, printing	73	3 00
Mar.	27.	By cash, N. W. Teleph'ne Ex. Co. Feb. bill	79	4 00
April	1.	By cash, Berry & Onion, mdse	91	4 45
April	12.	By cash, Louis Dreka, diplomas	96	46 70
May	5.	By cash, C. M. Webster, services as clerk	101	6 90
May	5.	By cash, Gallison & Gowen, mdse	102	7 20
May	6.	By cash, Berry & Onion, mdse	106	3 95
May	11.	By cash, Emily L. Hough, servc's as pt. clk	114	26 00
Mey	11.	By cash, Hawes & Smith, mdse	115	1 65
May	26.	By cash, Tribune binding dep., printing	120	1 50
July	21.	By cash, N. W. Telephone Ex. Co., March and April bill	121	8 00
June	1.	By cash, Emily L. Hough, rib'ns for dipl'ms	125	2 40
Jnne	1.	By cash, Emily L. Hough, services writn'g	126	25 75
June	6.	By cash, Wm. A. Pike, expressage	127	8 15
June	9.	By cash, Sykes & Andrews labor	128	2 50
May	19.	By cash, Ariel Association, advertising	129	30 00
June	7.	By cash, C. A. Rollit labor	130	3 60
June	21.	By cash, Cerry & Onion, mdse	131	8 20
June	23.	By cash, Tribune job dep. p'nt cl'nd'rs &c	148	429 50
July	21.	By cash, N. W. Telephone Ex. Co. May bill.	149	4 15
July	26.	By cash, Berry & Onion, mdse	150	4 20
June	30.	By cash. W. W. Folwell, house rent	159	250 00
June	30.	By cash, Emily L. Hough, services writing	160	22 00
June	30.	By cash, O. V. Tousley, services as sect	161	150 00
June	30.	By cash, F. Danz, musical comm	162	60 00
Sept.	14.	By cash, Barnard & Cope, use of chairs	166	10 00
July	19.	By cash, Jno. W. Sherwood m'nting maps	168	6 00
Oct.	6.	By cash, Wm. W. Folwell, expenses on trip of inspection of college buildings.	176	107 08
Oct.	20.	By cash, Paul & Sinsheimer, book case	183	28 00
Oct.	9.	By cash, C. D. Whitall & Co., mdse	184	2 84
Oct.	9.	By cash, Tribune job dep., printing	185	32 85
Oct.	9.	By cash, C. D. Whitall & Co., mdse	186	13 05
Oct.	5.	By cash, Emily L. Hough, services	187	18 55
Oct.	5.	By cash, Emily L. Hough, services writing	188	65 40
Oct.	6.	By cash, J. E. Gallow, cleaning building	189	15 75
Oct.	20.	By cash, N. Bernardini, plaster bust	190	6 50

			No. Voucher.		
Oct.	20,	By cash, C. Ginocchio, plaster bust........	191		4 00
Aug.	26.	By cash, O. M. Laraway, P. M., stamps...	199		42 20
Nov.	2.	By cash, Emily L. Hough, services writing	201		31 00
Nov.	2.	By cash, J. E. Gallow, cleaning building..	202		50 00
Oct.	26.	By cash, R. A. Davison, trips to St Paul &c.	203		10 25
Nov.	4.	By cash, W. F. Decker, petty expenses ...	209		4 70
Nov.	9.	By cash, N. W. Telephone Ex. Co. Sept. bill	214		16 30
Sept.	9.	By cash, Hiscock & Dennison, Gumwood case....	204		47 00
Aug.	26.	By cash, American Ex. Co., collections....	194		124 65
Nov.	21.	By cash, St. Paul Daily Globe, advertising	214		10 00
Nov,	21.	By Cash, Pioneer Press Co., advertising..	215		19 42
Nov.	22.	By cash, Johnson, Smith & H., printing...	216		17 50
Nov.	22.	By cash, Johnson, Smith & H., printing...	217		9 50
Nov.	23.	By cash, Mpls Tribune Co., advertising...	218		20 00
Nov.	27.	By cash, Berry & Onion, mdse............	219		7 02
Nov.	27.	By cash, Folds & Griffith, matting........	220		79 11
Nov.	29.	By cash, Edw'd D. Porter, expenses at State Fair, etc..........................	227		231 35
		To balance carried to current expense account		$2,237 47	
				$2,237 47	$2,237 47

SALT LAND SALES.

Dr.

1882.				
Jan.	16.	To balance from last statement.........................	$11,918 05	
May	26.	To cash received from Nels. Olson Aos, sale of cert. No. 32, sw ¼ Sec. 19 T. 136 R. 44................	598 45	
June	20.	To cash received from H. G. Stordock under cert. No. 47, first payment and interest on sale of nw ¼ Sec. 14, ne ¼ sec. 15, and se ¼ sec. 3, T. 135 R. 45..........	693 90	
June	24.	To cash received from J. J. Haggeman for interest due on certificates held by him on sec. 35, T. 136, R. 45..	152 32	
		on sec. 34, T. 136, R. 45..	152 32	
		on sec. 27, T. 136, R. 45..	152 32	
		on sec. 2, T. 135, R. 45 .	151 13	
		on sec. 11 and w ½ of sec. 12, T. 135, R. 45..	285 60	
		on ne ¼ sec. 10, T. 135, R. 45	47 60	
July	1.	To cash received from J. Gregory Smith under cert. Nos. 36 and 37, payment in full for s ½ sw ¼ and sw ¼ se ¼ sec 13, and n ½ nw ¼ and se ¼ ne ¼ sec. 24, T. 133, R. 44................................ ...	1,083 58	
July	6.	To cash received from Chas. J. Wright	539 70	
July	21.	To cash received from H. G. Stordock, under certs. 52, 53, 54, 56, and 57, first payment and interest on sale of se ¼ sec. 10, T. 135, R. 45, w ½ nw ¼ sec. 1, T. 135 R. 45, e ½ ne ¼ sec. 3, T. 135, R. 45, sw ¼ and e ½ nw ¼ sec. 1, T. 135, R. 45, and w ½ ne ¼ sec. 14 T. 135 R. 45	951 21	
Aug.	4.	To cash received from H. G. Stordock, under certs. No. 58 and 59, first payment and interest on sale of e ½ ne ¼ sec. 30 and nw ¼ and w ½ ne ¼ sec. 32, T. 136 R 44.......	775 19	
Nov.	30.	By Balance Carried to new account.....................		17,501 37
			$17,501 37	$17,501 37

STATIONARY, POSTAGE &c.

1882.					
		Cr.	No. Voucher.		
April	5.	By Cash, Beach & Co.	85		24 50
		Dr.			
Nov.	30.	To balance, carried to current expense ac't		$24 50	
				$24 50	$24 50

STUDENTS' FEES.

		Dr.		
1882.				
Mar.	16.	To cash of Jas. A. Dodge, students' fees	$120 00	
June	2.	To cash of Jas. A. Dodge, students' fees	190 45	
Oct.	7.	To cash of W. W. Folwell, students' fees	700 00	
		By balance, carried to current expense		$1,010 45
			$1,010 45	$1,010 45

WATER SUPPLY.

		Dr.		
Jan.	16.	To balance from last statement	$402 93	
		Cr.		
		By balance carried to new account		$402 93
			$402 93	$402 93

NEW EXPERIMENTAL FARM.

		Dr.			
May	15.	To cash received from State Treasurer		$10,000 00	
		Cr.	No. Voucher.		
May	15.	By cash, Edgar W. Bass, first payment on farm	122		$10,000 00
				$10,000 00	$10,000 00

PROF. PIKES' BOOK.

		Cr.	No. Voucher.		
Oct.	6.	By cash, L. Kimball & Co., printing	181		$109 85
		Dr.			
		To balance to current expense account		$109 85	
				$109 85	$109 85

SIXTEENTH ANNUAL REPORT

(SECOND BIENNIAL REPORT)

OF THE

PRESIDENT

OF THE

UNIVERSITY OF MINNESOTA

TO THE

BOARD OF REGENTS.

1880-'81 AND 1881-'82.

142

SIXTEENTH ANNUAL REPORT

(SECOND BIENNIAL REPORT)

OF THE

PRESIDENT

OF THE

UNIVERSITY OF MINNESOTA

TO THE

BOARD OF REGENTS.

1880-'81 AND 1881-'82.

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THE UNIVERSITY OF MINNESOTA,
MINNEAPOLIS, MINN.,
DECEMBER, 1882.

SIR:—I have the honor, in accordance with law, herewith to transmit the sixteenth annual report of the condition and progress of the University. The fifteenth annual report was duly submitted and was by you laid before the Board of Regents, December 22, 1881. It was not however, printed. The statistical portions are accordingly embodied in this report.

I have the honor to be,
Very respectfully,
Your obedient servant,
WM. W. FOLWELL,
President.

To the HON. HENRY H. SIBLEY,
President of the Board of Regents.

REPORT.

To the Honorable the Board of Regents:

The changes in and additions to the Board, and to the Faculty having been exhibited in your own reports, no further statements are necessary. I may be permitted, however, to express my deep sense of the confidence which has been for so long a term of years reposed in me by the Board, and my thankful appreciation of the earnest and faithful services of all my colleagues of the Faculty, not only in the conduct of their several departments, but in those general and undistributed duties of administration and discipline, the discharge of which is essential to the order and progress of the University. So far as it was the purpose of the Board in reconstructing the Faculty to secure friendly and active co-operation, their success has been absolute. It is my belief that no institution in any of the new states has an abler faculty or one which works in more perfect harmony.

The ranks of the alumni have been swelled by the accession of two large and well instructed classes. The degrees conferred since the last printed report are:

	1881.	1882.
Masters of Arts	1	....
Masters of Science	....	1
Bacheiors of Arts	11	11
Bachelors of Science	10	11
Bachelors of Literature	7	10
Bachelors of Agriculture	....	1
Totals	28	34

The list of names with residences of these graduates are given in appendix A, p—.

THE FOLLOWING TABLE SHOWS THE NUMBER AND KIND OF DEGREES WHICH HAVE BEEN CONFERRED BY THE UNIVERSITY:

	1873	1874	1875	1876	1877	1878	1879	1880	1881	1882	Tot.
Bachelor of Arts.......	2	1	3	4	9	5	8	4	10	11	57
Bachelor of Science.....	....	1	2	5	3	8	10	9	10	10	58
Bachelor of Literature..	....	....	1	....	3	2	6	4	7	11	34
Bachelor of Civil Eng'g.	....	....	3	3	....	....	2	....	....	....	
Bachelor of Mech. Eng'g	....	....	....	....	...	1	....	...	....	....	1
Bachelor of Architecture	....	....	....	....	1	....	....	....	....	....	1
Bachelor of Agriculture.	....	...	....	...	....	....	....	....	....	1	1
Master of Arts..... ...	...	....	....	....	....	..	....	1	1	....	2
Master of Science......	....	....	....	.	....	....	....	....	....	1	1
Total........	2	2	9	12	16	16	26	18	28	34	163

The whole number of persons graduated is one hundred fifty-four (154), six persons having received two degrees, those in science and engineering, and three bachelors having been awarded masters' degrees after passing the required examinations. No honorary degrees are conferred by this University.

The whole number of women who have been graduated is forty-three (43), viz: Bachelors of Arts, 6; of Science, 15; of Literature, 22; all of whom have completed the same courses of study as the gentlemen alumni, and undergone the same tests and examinations. So far as observed the young women have preserved their health as well as the young men. The records of the registrar's office will show that they have not been inferior in any kind of studies. Their degrees therefore are of precisely the same value as those received by the young men.

ATTENDANCE.

A summary statement has already been communicated to be embodied in the report of the Board. The extended statements, showing in detail the classification and distribution of the students for the two years, 1880–'81 and 1881–'82, are given in appendix B, p—.

The only noticeable feature of these tables is the diminution in numbers of the lower classes, indicating the fact that the preparatory schools have not yet taken up the work formerly done in the preparatory classes which have been dropped off. The discontinuance of the fourth class at the close of the year 1878–'79, was ordered by the Board in expectation that the law for the encouragement of higher education, enacted in 1878, would so stimulate the high schools of the State that they would almost immediately supply a large number of well-prepared candidates for admission. Unfortunately that excellent statute became inoperative after one year through the accident of the omission of the word "annually' in the final copy of the bill. The effect of that one year's work, in filling up the University, was not appreciable.

The legislature of 1881 wisely re-enacted the law with some amendments, and it has been now one year in operation. It will take some time for its effects to be strongly apparent, but they will appear. The people will in time come to understand that the road to the University lies through the high schools of the State, and those schools will feel a pride in conducting the secondary education as a part of the State system of public instruction. In the meantime a large number of youths are at a considerable disadvantage, and the University to which they would gladly resort is unable to serve them.

I would therefore most respectfully renew a recommendation which I had the honor to submit in the annual report for 1875, to the effect, that upon the dropping of the fourth class of the Collegiate Department, the Board reserve the right to open certain auxiliary sections for instructing students found insufficiently prepared in certain branches. My colleagues of the faculty will concur in this recommendation, I think, without exception. Additional force will be lent to it by an inspection of the record as to admissions. Insert A.

ADMISSIONS.

The system of "local examinations" begun in the summer of 1877, was continued in operation in both of the years covered by this report, 1880–'81 and 1881–'82. A larger proportion than usual of the examinees took advantage of the regulation permitting them to divide the entrance examination, and were accordingly examined on the more elementary subjects only. In consequence, a much smaller proportion of the whole number of examinees were admitted to the University.

RECORD FOR 1880-'81.

There were examined at St. Cloud, 6; at Owatonna, 8; at Wells, 3; at Mankato, 7; at St. Peter, 5; at Garden City, 7; at Austin, 4; at Spring Valley, 11; at Rochester, 12; at Winona, 3; at Lake City, 10; at the University in June, 22; in September 38; and at different times in the course of the first and second terms, 12; total, 148. Of this number 72 took the examinations in the common branches only. Of the remainder, 76 obtained admission, few if any, however, without conditions, as follows:

	Gentlemen.	Ladies	Total.
To the Classical Course....................	8	4	12
To the Scientific Course....................	24	4	28
To the Modern Course	1	8	9
To Selected Studies....................	4	4	8
	37	20	57

Of the 49 entering for regular courses, eight (8), four ladies and four gentlemen, obtained an enrollment in the Freshman class before the close of the year.

RECORD FOR 1881-'82.

There were examined in the summer of 1881, at Farmington, 9; at Glencoe, 2; at Stillwater, 7; at Duluth, 1; at Faribault, 6; at Waseca, 9; at Le Sueur, 2; at Spring Valley, 2; at Lanesboro, 2; at Austin, 8; at Rochester, 10; at Lake City, 2; at St. Peter, 3; at Red Wing, 3; at St. Cloud, 1; at Sauk Center, 4; at Litchfield, 2; at Brainerd, 3, at the University in June, 25; in September, 38; in the course of the year 16 more. Total, 155. Of this number 74 were but partially examined. Of the remaining 81, fifty-three (53) obtained admission, as follows:

	Gentlemen.	Ladies.	Total.
To the Classical Course....................	11	2	13
To the Scientific Course....................	11	4	15
To the Modern Course....................	2	11	13
To Selected Studies....................	9	3	12
	33	20	53

Six gentlemen of mature age were admitted to pursue selected studies without examination. Eleven young men were admitted to the special courses in shop-work and drawing in the engineering department without examinations. The whole number of students admitted was accordingly seventy (70). Four obtained Freshman rank before the close of the year.

It will be proper here to recall the existing regulations in regard to the admission of applicants to the Collegiate Department.

1. Applicants are admitted, as heretofore, upon examination at the University in June or at the opening of the fall term.

2. The General Faculty are required by your resolution to accept the certificates of the High School Board in lieu of examination in any of the subjects requisite for admission. Applicants bringing such certificates for all the preparatory studies will, of course, obtain admission without further examination.

3. Admission upon certificates of superintendents or principals of high schools is discontinued, the High School Board having extended to all high schools of the State the privileges of the examination system organized by them for the high schools working under their supervision by virtue of receiving State aid.

4. There remains therefore but one method of gaining admission—that by examination—candidates having, however, a choice between undergoing all the examinations in a mass at the time of application, and taking them one by one as they complete the several branches in their schools at home.

5. The so-called "local examinations" heretofore held in different parts of the State have become unnecessary since the extension to all high schools of the examination system of the High School Board. The details of that system will be found in the report of that board to the State Superintendent for the last school year.

6. Your resolution of May 10th, 1876, designed to prevent the removal of high school pupils to the University before the completion of their preparatory courses, remains in force. Accordingly no applicant from a district maintaining a high school can be admitted to any regular course in the University until he has progressed as far as his own high school will carry him in his course. The University will not receive an applicant whose high school will further instruct him in his regular work.

INSTRUCTION.

The usual tables exhibiting the work of instruction in the several departments under the heads: subject, text-book, instructor, number of exercises, class, number of students, term, will be found in appendix C., p. An inspection of these tables will bring to light the number and kinds of branches taught in the institution, and what is interesting, when so many branches are actually or virtually elective, the distribution of the students among them. As public, stated duties, they merely indicate the vast amount of private work by teachers and students in preparation.

The following subjects, included in tables for previous years, do not appear in this report, for the reason that they ceased to belong to the courses of study after the dropping of the "fourth class" of the Collegiate Department:

Greek grammar and reader; Cæsar's Commentaries; Cicero's orations; natural philosophy; physical geography; physiology; elementary astronomy; English composition; English word-analysis; English history; plane geometry; general history; free-hand drawing.

It is proper under this head to make particular mention of the following additional services performed, in most cases voluntarily, by members of the corps of instruction.

I. The Evening Drawing School.

This instruction was opened by Professor Pike in November, 1880, and a course of twenty-five free lessons in mechanical drawing, varied to suit different needs, was given to sixty-four different students. These students were young mechanics, mostly residing in the neighborhood of the University, who gladly embraced the opportunity. At the close of the course they testified their appreciation of this instruction by the presentation of a handsome memorial to Professor Pike.

At the opening of the course Gen. C. C. Washburn offered a prize to the value of twenty-five (25)dollars to that member of the class who should evince the greatest improvement and diligence. This prize, Knight's Mechanical Dictionary, was awarded to Mr. Frank H. Brown, of Monticello, Minn. The second prize, a fine set of draughting instruments donated by Charles D. Whitall & Co., was awarded to Mr. E. C. Amy, of Baraboo, Wis.

The same course of instruction was again opened in November, 1881, and carried on with like interesting and substantial results.

II. The Course in Shop Work.

This was opened in the basement rooms of the Agricultural College building soon after the beginning of the year 1881–2. The space being limited, the outfit was accordingly not extensive, but it was complete as far as it went. It consisted of a wood shop, with benches, and lathe, and wood-working tools; a vise shop, with benches, vises, files, and other "fitting" tools; and a forge shop, with a steam engine of eight-horse power, eight forges, as many anvils and the necessary forging tools. On account of delays, the wood shop was not used. Ten different young men took the vise or forge work, under immediate instruction of Mr. W. F. Decker, Professor Pike, being in charge of the department, that of mechanical engineering. The results, although on a small scale, were most satisfactory. The work of the young men may speak for itself. The general object of this kind of work is to train young mechanics and mechanical engineers in such a way that they may be competent to understand and test all kinds of fabrics and constructions of wood or metal. It is not the purpose to make tinsmiths or joiners, but to inculcate the principles and methods by which all smithing and carpentry are done.

III. The Summer School of Science and Letters.

This instruction was opened in July, 1881, and the credit of its organization is due, in the largest degree, to Professor C. W. Hall.

The following courses were given:

1. A course of twenty lectures in botany, by Professor C. E. Bessey, of the Iowa State Agricultural College, at Ames, Iowa, well and widely known as a successful teacher, author and investigator. The lectures were accompanied by laboratory work, under Prof. Bessey's supervision, in which the microscope and other instruments were handled and applied by the students themselves,

2. A course of lectures in chemistry by Prof. James A. Dodge, accompanied by laboratory work.

3. A course of lectures in geology by Professor C. W. Hall, chiefly relating to the geology and mineralogy of our State.

These courses began July 5th and continued through the month. The object as announced was "to afford teachers and others interested in the practical study of science an opportunity of becoming acquainted with the methods of original investigation and of teaching from actual specimens."

Forty-four persons, nearly all of them teachers of our own State and of Wisconsin, attended at some or all of the courses. The expressions of satisfaction and of thankfulness for the opportunities thus offered and enjoyed were general and emphatic. The only charge made was a laboratory fee of one dollar. The Board of Regents at the annual meeting in December, 1882, passed resolutions of thanks to the officers engaged, all of whom gave their instruction without charge.

Encouraged by the success of the previous year, members of the Faculty, Prof. Hall being most active, determined to repeat the experiment. Accordingly in the summer of 1882, the following programme was published, and substantially carried out:

THE UNIVERSITY OF MINNESOTA.

SUMMER SCHOOL FOR TEACHERS.

Courses of instruction in Botany, Geology, German, English, and Rhetoric will be opened at the University of Minnesota, July 5th, 1882, to continue five weeks. The essential features of the plan of last year will be retained, viz.: offering all the work that can be accomplished by those in attendance, and making a single study the leading feature of the course.

The assistance of Mr. J. C. Arthur, for two years Prof. Bessey's demonstrator in botany, in the Agricultural college in Iowa, and subsequently instructor of botany in the University of Wisconsin, has been secured to continue the work in that science so successfully opened one year ago.

The courses to be offered are as follows:

1. Botany, Mr. J. C. Arthur. *a*—Morphology of the vegetable cell. *b*—Special structure of plants considered by classes. *c*—Bibliography and history of botany. *d*—Vegetable histology and physiology. The laboratory work will be a prominent feature of the course, and will be arranged for both advanced students and beginners. The compound microscope will be used, although considerable attention will be given to the examination of both lower and higher plants by the aid of the simple lens. The course aims to present the more important facts of the science, and to start the student along a line of observation, which can be pursued afterward without requiring the oversight of a teacher.

II. Geology, Prof. C. W. Hall. *a*—An outline of descriptive mineralogy. *b*—The rocks and minerals of Minnesota. Laboratory will accompany this course, aiming especially to accustom students to determine our most common rocks and minerals at sight, or by the application of the simplest chemical and blow-pipe tests.

III. German, Prof. J. G. Moore. A course of twelve lessons in the elements of German, especially adapted to the wants of those intending to teach the language. Special attention will be given to the subject of pronunciation and formation of sentences.

IV. English, (two hours per week) Prof. Marston. The course will consist of lectures on the history, philosophy and grammar of the English language.

V. Rhetoric and Elocution, (three hours per week) Prof. Maria L. Sanford. The work in rhetoric will consist of exemplifications of the principles of the subject drawn from the masterpieces of English literature. The aim will be to show how our language has been actually used, and by what means a correct and elegant style can be acquired. About one-third of the time will be given to practice in elocution. Students who have text-books in rhetoric or in English literature, or copies of the work of our standard poets and prose writers will find it an aid to have these books at hand.

The equipment for carrying on the work of this summer school will be ample. The laboratories, museums, the library and the conservatory of the University will be brought into constant use. The only charge for attendance will be a laboratory fee of $1.00 per week; the lectures are wholly free, and any one or all of the courses may be attended. Good board can be obtained in the vicinity of the University for from $4.00 to $6.00 per week.

Although the courses are undertaken principally to offer the teachers of Minnesota the advantages of the State University and its equipment, all others who love study well enough to come and work with us will be heartily welcomed and helped.

Lectures and laboratory work will begin Wednesday, July 5th, at 9 A. M., and close Saturday, July 29th.

MINNEAPOLIS, May 24th, 1882.

Seventy-three persons, sixty-four ladies, and nine gentlemen, mostly teachers were in attendance on these courses. It should be noticed that the summer school of 1882, was not, like that of 1881, exclusively a school of science, instruction being given in the German and English languages, in rhetoric and in elocution. The attendance on the literary instruction was quite as large as that upon the scientific. There are numerous indications that the continuance of these summer courses is greatly desired by the teachers of the State. In what way, if at all, to respond to this demand, will soon be a practical question for this Board. It cannot be expected that individual professors will continue indefinitely to give such instructions without compensation.

IV. *The Farmers' Lecture Course.*

This course, although it had been advertised in a provisional way for several years, was first actually given in February, 1882. The opening address was made by the Hon. Chas. B. Loring, U. S. Commissioner of Agriculture, on "The Mutual Relations of American Industries." The leading course of lectures was that by Mr. Willis P. Hazard on the breeding and management of cattle. Other courses of various lengths on different subjects of practical interest were given by Hon. T. H. Saunders, Dr. G. A. Dalimere, Mr. J. H. Harris, and Professor E. D. Porter. Over two hundred ladies and gentlemen were in attendance upon some or all of these lectures, not counting a large number of members of other departments of the University. A detailed account of this course will be found in the report of Professor E. D. Porter, to whose intelligence and activity its success was chiefly due. I would respectfully recommend that the report of Professor Porter, together with abstracts of the various lectures, addresses and discussions, be printed with the report of the Board.

The marked success of the enterprise was a matter of great satisfaction to the writer, who in the annual report for 1874, urged the Board to begin a similar one. The number of young men desiring to pursue a full course of study in scientific agriculture is here, as everywhere else, very small. The best service the Agricultural College can now render, is this: to place in the hands of the actual working farmers of to-day the proved results of all the science and experience of the past. The idea of the Farmers' Lecture Course is to bring the practical agriculturists and horticulturists face to face with the men of science, who devote their lives to the application of science to the processes of the farm, the garden, the stable, &c. The discussions which follow the lectures serve to bring out and emphasize the most important practical points.

THE EQUIPMENT.

BUILDINGS.

The repairs which were so necessary at the time of the last report, were made under the direction of the Executive Committee in the summer of 1881, and had the effect to greatly improve the appearance of things. There remain two important items for which the means should be secured as soon as possible. These are:

1. The lighting of the assembly hall and the corridors and stairway leading thereto. This excellent audience room, which it is necessary to use on many evenings of the year, has not yet been sufficiently illuminated. Either gas or electric lighting is needed, and needed at once.

2. The construction of a main sewer which should receive the drainage of the present main building, and that of other buildings to be erected in its neighborhood. The cesspools which have been used, have been a constant source of annoyance and expense, but happily we have not yet been called on to trace the outbreak of disease to them. The situation of the present and proposed buildings is very favorable to the most thorough drainage at a small expense.

Otherwise the buildings will be found in good condition, and I am happy to report that the amount of damage done to buildings and furniture, beyond ordinary wear and tear, is not worthy of mention. The students appreciate the efforts of the Board to provide not merely comfortable but tasteful arrangements, and cheerfully co-operate in abstaining from and preventing damages.

The general condition of the "plant" has not changed since the last reports. Further development of the museums, laboratories, and the library has been impossible for lack of space, and suitable appliances. The response of the Legislature of 1881 to the appeals of the Board, was most encouraging to the Faculty, who expected the immediate enlargement of the facilities of the institution.

The delay of nearly two years in beginning the erection of the new buildings authorized and planned is a fact which it is not my province to complain of or to criticize, but it is simply just to state that the great development hoped and confidently expected has been in consequence postponed. At the same time it must be claimed that the most has been made of existing facilities, and that the delay has been submitted to without petulance on the part of the Faculty.

In regard to the museum it is necessary to remark that the Curator's report will be found in the report of the Geological Survey. The propriety of disconnecting the museum from the other portions of the University equipment, and merging it into the Geological Survey is questionable.

THE EXPERIMENTAL FARM.

In regard to this, there is nothing of educational interest to report. The sale of the old farm and the purchase of a new one will have been discussed elsewhere. The report of Professor Porter, herewith transmitted, is referred to for numerous statements and suggestions which will require your attention.

THE FRUIT FARM.

From the report of Superintendent Gideon, herewith transmitted, it will be seen that he has been deprived of the opportunity of testing the results of his first experiments, by the depredations of thieves. He has not, however, been discouraged.

THE GEOLOGICAL SURVEY.

The annual report of Prof. N. H. Winchell, State Geologist, is herewith transmitted.

The first volume of the final report is progressing toward publication. The field-work of the greater portion of the State has been completed, and the first volume pertains to that portion. The volume will be devoted to the careful description of the geology and topography of the southern half of the State, its soils, forests, and general physical features as dependent on geological agencies. It gives full accounts of its material resources, and particularly of the building stones, with chemical and physical tests that have been made. The field-geology of various counties, with ample maps and illustrations, will make the publication one of great value to the State. It is expected that the volume will be ready for distribution in about six months.

The annual reports of progress of the survey, for the years 1880 and 1881, the former of which has already been printed, exhibit also some of the minor work of the survey. These annual reports embrace important matter relating to the northern part of the State, not yet fully wrought out to completion. They at once show the rate of progress there, and put within the reach of those interested such information as has been obtained in the field, and at the same time preserve from loss the most of the field-notes in case of any accident by fire or otherwise.

During the year the work and plans of the survey have been interrupted in a degree by the lamented death of Mr. C. M. Terry, who had been engaged for two years as assistant. Mr. Terry's zeal and industry can be seen in the report of progress for the year 1880, on the Hydrology of Minnesota. His maps and unpublished manuscripts and his field notes, which have been put in the hands of Prof. Winchell, will be finally placed in shape for publication.

THE LIBRARY.

The whole number of volumes added in the year 1880–'81 was 573; in the year 1881–'82, 624. Volumes of periodicals were bound and placed on the shelves. With the permission of the Board the titles of these accessions will not be submitted with this report, but be reserved for a later one, when a considerable batch of them will have been accumulated. The compendious catalogue of subjects printed as an appendix to the last report has proved, as was expected, of very great use to students and others using these books. It is now possible to ascertain, with the least possible delay, what the library may contain on any subject. By authority of the Executive Committee, an edition of 1,000 copies on strong Manilla paper, was printed at the expense of the University. Single copies are sold at 25 cents, a trifle above cost, the proceeds returning to the treasury to reimburse the expense of publication. The amount of drudgery undergone by the librarians, in the preparation of the catalogues of subjects and authors, can never be known to any not experienced in library management.

The Board are again urged to devote to the increase of the library the largest sum they can justly spare. Situated as we are far from the great centers of literary activity, having access to no great public libraries, our own library is our almost sole source and fountain of knowledge. If you would reinforce and sustain the talents of your professors, keep them supplied with the best and latest books in their several specialties. A large and rich collection of books will attract and retain able teachers in your service. As was remarked in the last published report, incompetent teachers cannot remain in an institution whose students have access to the best books.

The following donations have been received and duly acknowledged on behalf of the University:

1880–'81.

U. S. GOVERNMENT.

Through Department of State:
    Reports of the Consuls, No. I. Oct. 1880. 5 v.
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    Foreign Relations, 1880.
    Handbook of Paris Exposition, 1878.
Through Treasury Dept.:
    Report of Secretary of Treasury, 1880. 2 v.
    Finance Report, 188
    Report of Commissioner of Internal Revenue, 1880.
    Letter from Acting Secretary. 2 v.
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    Synopsis of Decisions, 1880.
    Report of Life Saving Service, 1880.
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Through Dept. of Agriculture:
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Fish Commission Report, 1878.
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Through Col. C. P. Patterson, Supt.:
- Coast and Geodetic Survey Appendix, 1878.

Through Brig. Gen. S. V. Benet, Chief:
- Ordnance Report, 1880.

Through Hon. W. G. Le Duc, Comr.:
- Report of Commissioner of Agriculture, 1879.
- Preliminary Report of the Department of Agriculture, 1880.
- Hough, Report upon Forestry, Vol. II, 1878–'79.

Canada:
- Fifth Annual Report, 1879.
- Montreal Horticultural Society, 5th Report, 1879. 2 v.
- Report of Ontario Fruit Growers' Association, 1880.

Hon. J. Fletcher Williams, Secy:
- Minnesota Historical Society Collections, Vol. III, P. 3.

Eyre and Spottiswoode, London:
- Variorum edition of the Holy Bible.

O. S. Munsell:
- Psychology.

H. Stewart, New York:
- Irrigation for the Farm, Garden and Orchard.
- The Shepherd's Manual.

Ginn & Heath, Boston:
- Byerly's Differential Calculus.

Iowa:
- Horticultural Society Reports, 1871–'79. 9 v.
- Seventh and Eighth Biennial Reports, 1878–'80. 2 v.

Hon. C. W. Johnson, Minneapolis:
- Powell's Atlas of High Plateaus of Utah.

Gov. J. S. Pillsbury, Minneapolis:
- Forest Tree Planter's Manual, 1880.

H. L. Eads, Kentucky:
- Shaker Sermons. 2 v.

H. I. Bowditch, Boston:
- Public Hygiene in America.

Hon. Richard Chute, Minneapolis:
- Pitman, Alcohol and the State.

Clark Stewart, Minneapolis:
- Stockhardt, Principles of Chemistry.

Davenport Academy of Nat. Sci., Davenport:
  Proceedings, Vol. II, Part 2; Vol. III, Part 1. 2 v.
Prof. R. Pumpelly, New Haven:
  Copper, etc., on Lake Superior.
  Copper-bearing Rocks of Lake Superior.
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American Pomological Society, Rochester, N. Y.:
  Session of 1879.
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1881–'82.

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  Report of Committee of Internal Revenue, 1881.
  Finance Report, 1881.
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  Report of Cattle Commission, 1882.
  Synopsis of Decisions, 4731–5084.
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  Senate Misc. Doc., Vol. 2, 45th Cong., 3d Session.
  House Exec. Doc., Vol. 10, 45th Cong., 3d Session.
  House Exec. Doc., Inter. Com., 45th Cong., 3d Session.
  Senate Journal, 46th Cong, 1st Session.
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  Senate Misc. Doc., 1–50, 46th Cong., 1st Session.
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  House Misc. Doc. 1–26, 5 v., 46th Cong., 1st Session.
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  Bulletin U. S. Geol. and Geog. Survey, Vol. 6, No. 2.
  Bulletin No. 6, Entomological Society—Index.

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Annual Report of Committee of Patents, 1880.
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Powell, Study of Indian Languages.
Ledy, Fresh-Water Rhyzopods.
Dutton, Geology of Plateaus of Utah, and Atlas. 2 v.
Official Register, 1881.
Packard, Injurious Insects, Bulletin No. 7.
Senate Exec. Doc. No. 12, 45th Cong., 2d Session.
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House Exec. Doc., Vols. 1, 3, 4, 5, 6, 8, 11, 12, 15, 21, 22, 24—11 v., 46th Cong., 2d Session.
Coast Survey, 1877.

Through Smithsonian Institution:
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Diseases of Domestic Animals, 1880–'81.
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King, Geological Explorations, Vol. VII.
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Maps of Transportation Routes.

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  - " " Interior Dept., 1879–'80. 2 v.
  - " " Navy Department, 1878.
  - " " State Dept., 1879.
  - " " P. M. General, 1879–'80.
  - Report of Committee on Education, 1879. 2 v.
- Canada:
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  - Bulletin for 1882.
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  - Proceedings, Vols. 1, 2. 2 v.
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  - Prologue to Chaucer's Canterbury Tales.
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  - Elflora of the Susquehanna.
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  - Pre-glacial Outlet of Lake Superior. 2 v.
- Prof. Meyrowitz, Columbia, Mo.:
  - Hebrew Grammar.
- Prof. J. Brooks, D. D., Minneapolis:
  - Benton, Thirty Years in the U. S. Senate, Vol. 1.
  - Minnesota Debates, 1857.
  - The Museum, Vol. III.
  - Donnegan, Greek Lexicon.
  - Mallory, Life and Speeches of H. Clay. 2 v.
  - Montaige, Works.

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Rev. E. M. Williams, Minneapolis:
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H. L. Gordon, Minneapolis:
Legends of the Northwest.

Dr. W. E. Leonard, Minneapolis:
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Richardson, Temperance Lesson. 3 v.
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Rev. James McGolrick, Minneapolis:
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Periodicals. The following have been supplied by purchase:

Quarterlies—American Journal of Mathematics, Bibliotheca Sacra, British Review, Edinburgh Review, Journal of Philology, Journal of the Royal Agricultural Society, Journal of Speculative Philosophy, London Review, Westminster Review, Bulletin of the Nuttall Ornithological Club, Mind, Journal of Geological Society, The Antiquary.

Bi-Monthlies—New Englander, Princeton Review, Education.

Monthlies—American Journal of Science, American Naturalist, Atlantic, Century, Catholic World, Contemporary Review, Deutsche Revue, Fortnightly Review, Harper's Magazine, International Review, Library Journal, Magazine of Art, Nineteenth Century, North American Review, Popular Science Monthly, The Portfolio, Van Nostrand's Engineering Magazine, Blackwood's Magazine, Gardner's Monthly, Journal of Franklin Institute, The Analyst, American Miller, American Agriculturist, Botanical Gazette, American Microscopical Journal, Chemical Journal, Canadian Entomologist.

Semi-Monthlies—Ueber Land und Meer.

Weeklies—The Academy, Athenæum, American Architect, American Machinist, Chemical News, Harper's Weekly, Littell's Living Age, Nation, Journal of Education, Nature, Saturday Review, Sanitary Engineer, Scientific American and Supplement, Rural World, Revue Politique et Litteraire, Literary World.

Semi-Weeklies—New York Tribune.

The following have been furnished gratuitously by the publishers, to whom the thanks of the Board are due.

Monthlies—Messenger of Peace, Browne's Phonographic Monthly, Medical Register, Literary News.

Weeklies — Minnesota Mirror, Le Canadien, Labor Tribune, Christian Statesman, Science, Fargo Republican, Lake City Graphic, Justice, The Present Age, Svenska Folkets Tidning, Budstikken, Minnesota Staats Tidning, Real Estate Review, New York Weekly Witness, Farmington Journal, Union Signal, Folkebladet, Saturday Spectator, Glencoe Enterprise, Sabbath Reading.

Semi-Weeklies—New York Evening Post.

Dailies—Minnesota Tribune, Evening Journal.

REMARKS AND SUGGESTIONS.

The length of this report does not permit me to discuss in detail a number of subjects, which in my opinion should receive early consideration by the Board. Some of these I have already had the honor to bring to your attention. The following enumeration includes some points already mentioned in this report.

1. The discontinuance of the $5.00 fee collected annually from students and its replacement with a deposit of money to be refunded less any deductions for loss or damages to books, furniture, apparatus, etc.

As a part of the revenue the sum received is inconsiderable, and it appears in some cases that persons paying it construe themselves entitled to commit damages to the amount of $5.00.

2. The shortening of the University year so that young men may go to the farms and young women to the country schools at the opening of spring.

In the department of agriculture the scholastic work would be done in the winter months and the whole summer reserved for practical out-door operations. In our extreme climate it is impossible to divide days between study and work. That separation must go by seasons.

3. The establishment in some form within the general faculty, soon to become a larger body ill adapted to judicial duties, of a judiciary body or committee, with power under law to compel testimony in grave cases.

4. The provision in some manner, on a limited scale, of a home for young women attending in the University. There is little doubt that other institutions making such provision will attract young women who would, if similar arrangements existed for them, resort to the University.

5. An arrangement with the State Normal Board, and the principals of the Normal schools, by which the students of the University, a large number of whom are to be teachers, may receive instruction by those officers in the theory and practice of teaching.

6. Some permanent arrangement for carrying on the summer schools at the University, which seem to be so much in request, and so useful to the teachers of the State.

7. That authority be given to the general faculty to open in the Sub-Freshman class certain auxiliary sections for the instruction of applicants of insufficient preparation, whom it is undesirable to wholly reject.

8. That the Farmers' Lecture Course be continued, and that as fast as possible the instruction be regularly organized, and the programme published in the annual calendar.

9. That a sewer for the main building, and others to be built adjoining it, be constructed as soon as possible, and that some means be provided for lighting the assembly hall.

10. That the new buildings be begun, and pushed forward as fast as the means can be furnished by the State.

11. That the annual appropriation for the increase of the library be raised to $3000.

12. That the religious denominations of the State be invited to erect in the neighborhood of the University, but wholly independent of it, and entirely under their own control, "halls" to serve as Christian homes for their youths while carrying on their studies at the University.

13. The favorable consideration of the petition of the students and professors forming the Students' Christian Association of the University, for the designation of a site on the campus, upon which they may erect a building, to include a small chapel, a reading room, &c., for the uses of the association. As the constitution shows, the liberal spirit of this organization is to include all, and exclude none, who sympathize in its Christian work and worship, and desire to co-operate therein.

14. That the Board provide for the publication in their biennial reports of such literary and scientific contributions as may have been made by members of the University. Such publications will render the reports interesting and desirable, and increase their circulation among Universities and learned societies, and what is more, will stimulate the production of valuable papers in the University. The youngest of our American Universities has already placed the scholars of the country under obligations by means of papers it has printed and circulated.

The contributions on geological survey have shown what interest may be added to our reports in the manner specified.

15. The increase of the working force of the University. The

immediate need is a professor of physics, a scientific department of the first importance. A professor of history should probably be the next accession.

16. The increase of the permanent endowment as the chief duty of the guardians of the University in the present generation. Before the close of the present century the institution must, to maintain its place among the foremost, be receiving an income five times that now coming in, and by the middle of the next century ten times as much. A great revenue wisely and economically expended is the one great fundamental requisite of a great University.

Universities are costly establishments, but only those countries which support and nourish Universities take the lead in the advance of civilization.

They are not to be supported, however, in the interest of the small proportion of the people who can be directly educated in them. It is far more the interest of the whole people, which is to be consulted, and all are concerned in the perpetuation of the knowledge of the past, in diffusing the results of science, in original research, and in transmitting the accumulations of culture to the next generations.

In closing this report, I mention as a matter for congratulation, that the general plan of University organization adopted by your Honorable Board in 1871 has been, in the past year, in its essential principles put into operation by the University of Michigan, thus justifying action by you which was thought at the time by some to be premature if not ill-advised.

All of which is respectfully submitted.

APPENDIX "A"

GRADUATIONS.

At the ninth annual Commencement, held June 2, 1881, the ollowing 27 degrees were conferred:

1881.

COLLEGE OF SCIENCE, LITERATURE AND THE ARTS.

Master of Arts.

WILLIS MASON WEST (B. A. 1879.)

Bachelors of Arts.

eorge Briggs Aiton	St. Peter.
amuel Gilmore Anderson	Eden Prairie.
tway Wilkinson Baldwin	Clear Lake.
Villiam Cullen Bryant	St. Peter.
Ierbert Oscar Chowen	Minneapolis.
mily Louise Hough	Philadelphia, Pa.
harles Edward Kent	Toledo, O.
Villiam Leslie King	Garden City.
uintin John Rowley	Oakland.
red Beal Snyder	Minneapolis.

Bachelors of Science.

red Leslie Bardwell	Minneapolis.
Ierbert John Broughton	Minneapolis.
iana Burns	Minnetonka.
eorge Sutherland Grimes	Minneapolis.
ames Jennison	Red Wing.
avid Albert Locke	Minnetonka.
amuel Allen Locke	Minnetonka.
arah Ellen Palmer	Shell Rock.
Villiam Hines Savidge	Cleveland.
lla Ruth Williams	Brooklyn.

Bachelors of Literature.

Iarlow Horace Bonniwell	Hutchinson.
Iargaret Agnes Campbell	Nova Scotia.
ettie May Crafts	Minneapolis.
mma Elizabeth Grimes	Minneapolis.
Villiam Edmund Harrington	Hutchinson.
mma Ernestine Maes	Minneapolis.
radley Phillips, Jr	Hudson, Wis.

The graduations, 33 in number, at the tenth annual Commencement, held June 1, 1882, were as follows:

1882.

Master of Science.

ROBERT HENRY CRAFTS, (B. S. 1877.)

Bachelors of Arts.

James Bennett Gould	Eden Prairie.
Frank Healy	Preston
Andrew Franklin Hillyer	Minneapolis.
Carrie Warner Holt	Chatfield.
Lydia Rossiter Holt	Chatfield.
Frances Ada Knox	Garden City.
Frank Nichols Leavens	Faribault.
Alexander Hamilton Nunn	Claremont.
Eli Milton Skiff Pickett	Albert Lea.
Charles Myron Webster	Red Wing.
Jesse Craig Wilson	Dundas.

Bachelors of Science.

George Joseph Backus	Red Wing.
William Wyckoff Clark	Mankato.
Alice Elizabeth Demmon	Minneapolis.
Carrie Delania Fletcher	Mankato.
Emma Laura Hendrickson	St. Paul.
William Beans Linton	Cook's Valley.
Henry Francis Nachtrieb	Newport.
Rasselas Hamlin Prosser	Spring Valley.
Herbert Paine Shumway	Alexandria.
Edward Duffield Neill Whitney	Minneapolis.

Bachelors of Literature.

Agnes Virginia Bonniwell	Hutchinson.
Grace Webster Curtis	Decorah, Ia.
Arthur Edwin Dickerman	Decorah, Ia.
Marie Louise Henry	Minneapolis.
Mary Eliza Holt	Chatfield.
Mary Nancy Hughes	Minneapolis.
Richard Hartwell Johnson	St. Charles.
Louie Lillian Kilbourn	Minneapolis.
Emily Dana McMillan	Minneapolis.
Addie Eva Pillsbury	Minneapolis.
Harry Amy Strong	Decorah, Ia.

APPENDIX "B."

ATTENDANCE.

THE FOLLOWING TABLES EXHIBIT THE ENROLLMENT AND CLASSIFICATION OF THE STUDENTS.

SUMMARY, 1880-81.

COLLEGE OR DEPARTMENT.	CLASS.	Gentlemen.	Ladies.	Total.
Science, Literature and the Arts.	Graduate	....	1	1
	Senior	20	9	29
	Junior	17	9	26—56
Mechanic Arts	Specials	2	....	2
	Evening Drawing.	62	....	62—64
Collegiate Department	Sophomore, I.	33	20	53
	Freshman, II.	49	19	68
	Sub-Freshm., III.	43	13	56
	Special Students.	21	17	38—215
Totals		247	88	335

OR BY CLASSES ONLY.

Graduate	1
Seniors—of all Departments	29
Juniors—of all Departments	26
Sophmores—Collegiate Department	53
Freshmen—Collegiate Department	68—17
Sub-Freshmen—Collegiate Department	56— 56
Special Students	40— 40
Evening Drawing	62— 62
Total	335

THE DISTRIBUTION OF STUDENTS IN THE VARIOUS DEPARTMENTS, CLASSES AND COURSES IS SHOWN AS FOLLOWS:

COLLEGE OF SCIENCE, LIERATURE AND ART.

CLASS.	COURSE.	Gentlemen.	Ladies.	Total.
Senior	Classical	10	2	12
	Scientific	7	3	10
	Modern	3	4	7
Totals		20	9	29
Junior	Classical	6	2	8
	Scientific	7	2	9
	Modern	3	6	9
Totals		16	10	26

COLLEGE OF MECHANIC ARTS.

CLASS.	COURSE.	Gentlemen.	Ladies.	Total.
Special		2		2
Evening Drawing		62		62
Totals		64		64

COLLEGIATE DEPARTMENT.

CLASS.	COURSE.	Gentlemen.	Ladies.	Total.
Sophomore	Classical	13	3	16
	Scentific	16	3	19
	Modern	4	14	18
Totals		33	20	53
Freshmen	Classical	21	3	24
	Scientific	24	8	32
	Modern	4	8	12
Totals		49	19	68
Sub-Freshman	Classical	15	1	16
	Scentific	22	4	26
	Modern	6	8	14
Totals		43	13	56
Special Students		21	17	38
Totals		146	69	215

Two hundred and thirty-eight (238) students were enrolled as residents of Minnesota, the following counties being represented:

Blue Earth, 8; Brown, 2; Carver, 2; Dakota, 5; Dodge, 5; Douglas, 1; Faribault, 2; Fillmore, 15; Freeborn, 4; Goodhue, 10; Hennepin E., 37; Hennepin W., 65; Houston, 2; Le Sueur, 4; Lyon, 3; McLeod, 4; Meeker, 4; Mower, 3; Nicollet, 7; Olmstead, 6; Polk, 2; Ramsey, 13; Rice, 4; Rock, 1; St. Louis, 1; Scott, 2; Sherburne, 1; Stearns, 3; Steele, 5; Stevens, 1; Wabasha, 6; Waseca, 1; Washington, 2; Winona, 1; Wright, 4; — Thirty-five counties.

Thirty-three were registered from other States and countries, to-wit:

Dakota Territory, 8; England, 1; Illinois, 2; Iowa, 8; Kansas, 1; Maine, 1; Massachusetts, 1; Michigan, 1; Montana Territory, 1; New York, 1; Nova Scotia, 1; Ohio, 3; Pennsylvania, 1; Vermont, 1; Wisconsin, 2; — sixteen States and countries.

SUMMARY, 1881-82.

COLLEGE OR DEPARTMENT.	CLASS.	Gentlemen.	Ladies.	Total.
Science, Literature and the Arts	Senior	18	14	32
	Junior	8	7	15— 47
Mechanic Arts	Senior	....	....	....
	Junior	4	....	4
	Special	14	....	14— 18
Agriculture	Senior	1	....	1— 1
Collegiate Department	Sophomore, I	39	11	50
	Freshman, II	25	8	33
	Sub-Freshm, III	44	27	71
	SpecialStudents	24	9	33—187
Totals		177	76	253

OR BY CLASSES ONLY.

Seniors—of all Departments	33	
Juniors—of all Departments	19	
Sophomores—Collegiate Department	50	
Freshmen—Collegiate Department	33	
Sub Freshmen—Collegiate Department	71	
Special Students	47	
Total		253
Candidates for Masters' Degrees		9
Attending Summer School of Science		42
Attending Evening Drawing School		51
Attending Farmers' Lecture Course		191
Grand total		546

THE DISTRIBUTION OF STUDENTS IN THE VARIOUS DEPARTMENTS CLASSES AND COURSES WAS AS FOLLOWS:

COLLEGE OF SCIENCE, LITERATURE AND ART.

CLASS.	COURSE.	Gentlemen.	Ladies.	Total.
Senior	Classical	8	3	11
	Scientific	8	2	10
	Modern	2	9	11
Total		18	14	32
Junior	Classical	7	1	8
	Scientific	1	2	3
	Modern	0	4	4
Total		8	7	15

COLLEGE OF MECHANIC ARTS.

CLASS.	COURSE.	Gentlemen.	Ladies.	Total.
Senior				
Junior	Mech. Engineering	1		1
	Civil Engineering	3		3
Special		14		14
Evening Drawing		51		51
Totals		69		69

COLLEGE OF AGRICULTURE.

CLASS.	COURSE.	Gentlemen.	Ladies.	Total.
Senior	Regular	1		1
Farmers	Lecture	152	39	191
Totals		153	39	192

COLLEGIATE DEPARTMENT.

CLASS.	COURSE.	Gentlemen.	Ladies.	Total.
Sophomore	Classical	14	3	17
	Scientific	21	3	24
	Modern	4	5	9
Total		39	11	50
Freshman	Classical	10	1	11
	Scientific	14	2	16
	Modern	1	5	6
Total		25	8	33
Sub-Freshman	Classical	17	2	19
	Scientific	21	10	31
	Modern	6	15	21
Total		44	27	71
Special Students		38	9	47
Totals		14	55	201

Two hundred and twenty-three (223) were enrolled as residents of Minnesota, the following counties being represented:

Blue Earth, 8; Brown, 1; Carver, 3; Clay, 2; Dakota, 6; Dodge, 5; Faribault, 3; Fillmore, 10; Freeborn, 3; Goodhue, 13; Hennepin E., 39; Hennepin W., 60; Houston, 2; Le Sueur, 5; Lyon, 1; McLeod, 1; Martin, 1: Meeker, 5; Mower, 8; Nicollet, 4; Olmstead, 4; Ramsey, 10; Rice, 5; Rock, 1; St. Louis, 1; Stearns, 3; Steele, 4; Stevens, 1; Wabasha, 3; Waseca, 1; Washington, 1; Winona, 1; Wright, 7; — Thirty-three counties.

Thirty students were enrolled from other States and countries, as follows:

Dakota Territory, 7; Florida, 1; Indiana, 1; Illinois, 2; Iowa, 7; Kansas, 1; Massachusetts, 1; Michigan, 2; Montana Territory, 3; New York, 3; Ohio, 1; Vermont, 1; — twelve States and countries.

APPENDIX "C."

WORK OF THE YEAR 1880-81.

THE YEAR BEGAN SEPTEMBER 7, 1880, AND ENDED JUNE 21, 1881.

Subjects.	Text Books.	Instructor.	No. of Exercis's	Class.	No. of Students	Term.
MATHEMATICS.	PROF. J. F. DOWNEY.					
Analytical Geometry	Olney.	Downey	57	Junior	1	I.
Higher Algebra, 1 §	"	"	27	Freshm.	30	I.
" " 1 §	"	Hutchinson	26	"	30	I.
" " 2 §	"	Downey	25	"	29	I.
" " 2 §	"	Hutchinson	24	"	29	I.
Differential Calculus	"	Downey	57	Junior	5	II.
Trigonometry, 1 §	"	"	54	Freshm.	29	II.
" 2 §	"	"	54	"	27	II.
Algebra, 1 §	"	Hutchinson	50	Sub-Fr.	15	II.
" 2 §	"	"	50	"	18	II.
Integral Calculus	"	Downey	58	Junior	3	III.
Conic Sections, 1 §	"	"	25	Sophom.	18	III.
" " 2 §	"	"	12	"	8	III.
" " 2 §	"	Hutchinson	10	"	9	III.
Theory of Equations, 1 §	"	Downey	9	"	13	III.
" " 2 §	"	"	9	"	8	III
Solid Geometry, 1 §	Wentworth	Hutchinson	53	Sub-Fr.	24	III
" " 2 §	"	"	52	"	8	III.
ASTRONOMY.	PROF. J. F. DOWNEY.					
Practical Astronomy	Loomis	Downey	48	Senior	3	III
CHEMISTRY.	PROF. J. A. DODGE.					
General Chemistry	Barker	Dodge	55	Sub-Fr.	14	I
Theoretical Chemistry	Lectures	"	55	Sophom.	12	I.
Analytical Chemistry	Appleton, &c.	"	55 d. h.*	Sen. Jun.	22	I.
" "	" "	"	49 d. h.	"	27	II
" "	" "	"	30 d. h.	Sophom.	13	II.
General Chemistry, 1 §	Barker	"	55	Freshm.	25	III.
" " 2 §	"	"	55	"	24	III.
Analytical Chemistry	Fresenius	"	55 d. h.	Sen. Jun.	15	III.
" "	"	"	22 d. h.	Sophom.	7	III
PHYSICS.	PROF. WM. A. PIKE, in charge.					
Mechanics	Peck	Pike	53	Sophom.	14	I.
Sound and Heat	Ganot	"	55	Freshm.	30	II.
BOTANY.	PROF. C. W. HALL.					
Elementary Botany	Gray	Hall	57	Sub-Fr.	20	III.
Advanced Botany	Bessey	"	57	Freshm.	37	III.
Laboratory Work	"	"	40	"	37	III.
ZOOLOGY.	PROF. C. W. HALL.					
Comparative Zoology	Orton	Hall	56	Soph	18	III.
Advanced Zoology	Packard	"	56	Junior	21	I.
Laboratory Work	"	"	20	"	21	III.
GEOLOGY AND MINERALOGY.	PROF. C. W. HALL.					
General Geology	Dana	Hall	57	Senior	31	I.
Economic Geology	Lectures	"	41	"	10	II.
Essays		"	30	"	30	I.
Mineralogy	Lectures	"	50	Junior	33	II.
Blowpipe Work	Brush	"	40	"	33	II.

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* Double hours

Subjects.	Text Books.	Instructor.	No. of Exercis's	Class.	No. of Students	Term.
ENGLISH.	PROF. M. MARSTON.					
Rhetoric	Hepburn	Sanford	50	Sophom.	38	II.
Elocution		"	11	"	40	I.
Compositions		"	10	"	27	III.
Elocution		"	10	Freshm.	59	II.
Compositions		"	10	"	57	III.
Compositions		"	11	Sub-Fr.	36	I.
Elocution		"	10	"	32	II.
American Literature	Royse	Campbell	55	"	13	I.
Addison, Goldsmith & Burns	Hudson	"	53	"	9	II.
Burke, Scott & Wordsworth	Hudson	"	56	"	7	III.
How to Write Clearly	Abbott	"	54	Freshm.	7	I.
Shakspeare	Rolfe	"	57	"	26	III.
Brit. and Am. Oratory	Goodrich	Marston	55	Seniors	11	I.
Orations and Essays		"	2 each.	"	27	I.
" "		"	2 each.	"	27	II.
" "		"	2 each.	"	26	III.
Philos. of Lit. and Crit	Lectures	"	30	"	29	III.
Orations and Essays		"	2 each.	Juniors	38	I.
" "		"	2 each.	"	38	II.
" "		"	2 each.	"	38	III.
English Literature	Lectures	"	55	"	33	III.
History English Language	Lectures	"	55	Sophom.	21	I.
Anglo-Saxon	Carpenter	"	55	"	15	II.
" "		"	56	"	6	III.
Milton	Sprague	"	55	Freshm.	14	II.
GERMAN.	PROF. J. G. MOORE.					
Scientific German Prose	Hodge	Moore	54	S. & Jun.	26	I.
Grammar	Whitney	"	54	Junior	19	"
Schiller's Egmont, &c	Buchheim	"	54	Freshm.	22	"
Composition	Comfort	Campbell	54	Sub-Fr.	17	"
Composition	"	"	54	Sub-Fr.	14	"
Goethe's, Faust, &c	Hart&Buchheim	Moore	55	Sr & Jun	21	II.
Grammar and Reader	Whitney	"	55	Junior	18	"
Hist. Ballads and Ger. Hist.	Wagner	"	55	Freshm.	20	"
Composition, Exercises, &c	Comfort	Campbell	55	Sub-Frm	16	"
" " "	"	"	55	"	16	"
Hist. of Ger. Lit., &c	Lectures	Moore	59	Sr & Jun	17	III.
Schiller's Jungfrau	Worman	"	59	Junior	16	"
Lessing's Minna von Barnhelm	Buchheim	"	59	Freshm.	16	"
Grammar and Reader	Whitney	Campbell	59	Sub-Fr.	17	"
Grammar	"	"	59	"	10	"
FRENCH.	PROF. C. W. BENTON.					
Racine, etc	Bue	Benton	55	Senior	19	I
Grammar and Reader 1 §	Bocher	"	55	Sophom.	20	I.
" " " 2 §	"	"	55	"	26	I.
Moliere, etc		"	53	Seniors	21	II.
Trans. into French	Sadler	"	....	"	21	II.
Grammar and Reader, 1 §	Bocher	"	53	Sophom.	20	II.
" " " 2 §	"	"	53	" II.	23	II.
Petite Histoire	Lacombe	"	55	Seniors	15	III.
Trans. into French	Sadler	"	....	"	15	III.
French Literature	Lectures	"	....	"	15	III.
Grammar and Reader, 1 §	Bocher	"	55	Sophom.	27	III.
" " " 2 §	"	"	55	"	....	III.
La Fontaine Fables	Sauveur	"	....	"	....	III.
LATIN.	PROF. J. BROOKS, in charge.					
Horace	Chase & Stuart	Clark	52	Sophom.	19	I.
History of Roman Literature	Reference	"	10	"	19	I.
Livy	Lincoln	"	53	Freshm.	9	I.
Roman History	Liddell	"	....	"	9	I.
Cicero, 1 §	Chase & Stuart	"	52	Sub. Fr.	11	I.
" 2 §	" "	Hutchinson	51	"	12	I.
Livy	Lincoln	Clark	53	Freshm.	26	I.
Roman History	Liddell	"	....	"	26	I.
Livy, 1 §	Lincoln	"	56	Freshm.	20	II.
Roman History	Liddell	"	....	"	20	II.
Livy, 2 §	Lincoln	"	51	"	12	II

Subjects.	Text Books.	Instructor.	No. Exercis's	Class.	No. Students	Term.
LATIN (*Continued.*)	PROF. J. BROOKS IN CHARGE.					
Roman History	Liddell	Clarke		"	12	II.
Virgil	Searing	"	52	Sub-Fr.	24	II.
Mythology and Geology	Smith & Lidd'l	"		"	24	II.
Tacitus	Tyler	"	55	Sophom.	20	III.
History of Roman Emperors	References	"	15	"	20	III.
Virgil	Searing	"	55	Sub-Fr.	19	III.
Mythology and Geology	Smith & Lidd'l	"		"	19	III.
GREEK.	PROF. J. BROOKS, D. D.					
Plato—Text	Davies	Brooks	53	Junior	11	I.
Lectures		"	2	"	11	I.
Essays		"	33	"	11	I.
Xenophon	Brooks	"	56	Sub-Fr.	10	I.
Homer—Text	Boise	Hutchinson	50	Freshm.	19	I.
Essays		"	57	"	19	I.
Examinations for entrance and conditions		Brooks & Hutchinson	33			I.
Homer—Text	Boise	Hutchinson	50	Freshm.	15	II.
Æschylus—Text	Woolsey	Brooks	53	Sophom.	12	II.
Essays		"	36	"	12	II.
Xenophon	Boise	"	56	Sub-Fr.	12	II.
Plato—Text	Davies	"	53	Sophom.	10	III.
Essays		"	22	"	10	III.
Demosthenes	Tyler	"	60	Freshm.	18	III.
Xenophon	Boise	Hutchinson	55	Sub-Fr.	9	III.
Examinations for Conditions		Brooks	3			III.
MENTAL AND MORAL PHILOSOPHY.	PROF. A. T. ORMOND, (See HISTORY.)					
History of Philosophy	Lectures	Ormond	55	Senior	23	I.
Ethics	"	"	55	"	26	II.
Natural Theology	"	"	15	"	7	III.
Psychology	"	"	55	Junior	35	III.
HISTORY.	PROF. A. T. ORMOND.					
Ancient History	Rawlinson	Ormond	55	Sub. Fr.	35	I.
Mediæval "	Green		22	Freshm.	49	II.
Modern "	Swinton		23	Sophom.	21	III.
History of Civilization	See Political	Science below				
POLITICAL SCIENCE, ETC.	MR. WM. W. FOLWELL.					
History of Civilization	Guizot	Folwell	39	Junior	34	I.
General Philology	Lectures	"	12	"	37	I.
Civil Government	DeTocqueville	"	26	Senior	23	II.
Constitution U. S.	Lectures	"	13	"	23	II.
Constitution Minnesota	"	"	7	"	23	II.
International Law	Woolsey	"	[illegible]	"	10	II.
Political Economy	Lectures	"	50	"	23	III.
PUBLIC HEALTH.	DR. C. N. HEWITT.					
Sanitary Science	Lectures	Hewitt	8	Seniors	25	III.
School Hygiene	"	"	6	Sub-Fr.	30	III.
INDUSTRIAL DRAWING.*	PROF. WM. A. PIKE, in charge.					
Projections, etc		Pike	57	Freshm.	28	I.
Descriptive Geometry	Church	Pike	55	Sophom.	14	II.
Geometrical Drawing	Pike	Pike	55	Sub-Fr.	16	II.
Mechanical "	Pike	Mayo	25	Evening	64	I. II

AGRICULTURE. PROF. E. D. PORTER.

(Chair vacant first half of year.)

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*All Double hours.

Subjects.	Text Books.	Instructor.	No. Exercis's	Class.	No. Students	Term.
CIVIL ENGINEERING.		PROF. WM. A. PIKE.				
Surveying	Lectures	Pike	42	Freshm.	30	III.
MILITARY SCIENCE.		(Chair Vacant.)				
EDUCATION.						
Theory of Teaching	Lectures	Sanford	10	At large	35	II.
MUSIC.						
Vocal Lessons	Selected	Leib	20	At large	75	Year

WORK OF THE YEAR 1881-82.

THE YEAR BEGAN SEPTEMBER 6TH, 1881, AND ENDED JUNE 1ST, 1882.

Subjects.	Text Books.	Instructor.	No. Exercis's	Class.	No. Students	Term
ASTRONOMY.	PROF. J. F. DOWNEY.					
Descriptive Astronomy	Loomis	Downey	54	Senior	7	I.
MATHEMATICS.	PROF. J. F. DOWNEY.					
Higher Algreba	Olney	Downey	54	Freshm	43	I.
Trigonometry	"	"	34	Freshm	30	II.
Differential Calculus	"	"	54	Junior	8	"
Conic Sections	"	"	34	Sophom	42	III.
Integral Calculus	"	"	51	Junior	7	"
Plane Geometry	Wentworth	"	54	Special	3	I.
Algebra	Olney	"	54	"	2	"
Plane Geometry	Wentworth	"	54	"	2	II.
Algebra	Olney	"	54	"	2	"
Algebra	"	Hutchinson	28	Freshm	34	I.
Algebra, § 1	"	"	52	Sub-Fr	22	II.
" § 2	"	"	52	"	12	"
Solid Geometry, § 1	Wentworth	"	55	"	17	III.
" " 2	"	"	55	"	17	"
Analytical Geometry	Olney	"	13	Sophom	18	"
CHEMISTRY.	PROF. J. A. DODGE.					
Elementary Chemistry	Barker	Dodge	54	Sub-Fr	14	I.
Applied Chemistry	Lectures	"	53	Sophom	22	I.
Analytical Chemistry	Appleton	"	54	Sen&Jun	21	I.
Analytical	Lab. Practice	"	33	Soph	16	II.
"	" "	"	55	Sen&Jun	16	II.
General Chemistry	Barker & Lec's	"	53	Fr. Sci	13	III.
" " abridged.	Barker	"	54	Fr. C.&M	16	III.
Analytical Chemistry	Lab. Practice	"	22	Sophom	10	III.
" "	" "		55	Sen&Jun	17	III.
PHYSICS.	PROF. WM. A. PIKE, in charge.					
Mechanics	Goodeve	Pike	54	Jun	2	I.
Elementary Physics	Peck's Ganot	Decker	54	So. C&M	14	I.
Mechanics	Peck	"	54	Soph. Sci	15	I.
Higher Mechanics	Rankin	Pike	52	Jun	6	II.
Physics	Atkinson	Decker	49	Freshm	14	II.
BOTANY.	PROF. C. W. HALL.					
Botany	Laboratory	Hall	53	Fr. Sci	18	III.
"	Gray	"	53	Fr. C.&M	18	III.
"	"	"	53	S. Fr. Sci	16	III.
ZOOLOGY.	PROF C. W. HALL.					
Zoology	Packard	Hall	56	Junior	8	I.
"	Laboratory	"	56	Junior	7	I.
"	Orton	"	53	Sophom	18	III.
"	Laboratory	"	10	"	18	III.
GEOLOGY.	PROF. C. W. HALL.					
General Geology	Lectures	Hall	56	Senior	27	I.
Economic "	"	"	57	"	4	II.

Subject.	Text Books.	Instructor.	No. Exercis's	Class.	No. Students	Term.
MINERALOGY.	PROF. HALL.					
Mineralogy	Lectures	Hall	57	Junior	21	II.
"	Laboratory	"	22	Junior	20	II.
ENGLISH.	PROF. M. MARSTON, PH. D.					
British Oratory	Goodrich	Marston	53	Senior	14	I.
History English Language	Lectures	"	53	Sophom	9	I.
Milton	Sprague	"	53	Freshm	6	II.
Anglo-Saxon	Carpenter	"	53	Sophom	8	II.
English Criticism	Lectures	"	30	Senior	28	III.
English Literature	Shaw & Lect's.	"	53	Junior	28	III.
English Criticism	Abbott	Campbell	55	Freshm	9	I.
American Authors	Royse	"	54	Sub-Fr	10	I.
Addison and Goldsmith	Hudson	"	52	"	10	II.
Shakespeare	Rolfe & Abbott	"	57	Freshm	5	III.
Macaulay		"	57	Sub-Fr	9	III
GERMAN.	PROF. J. G. MOORE.					
Goethe, Faust	Hart	Moore	33	Sen&Jun	22	I.
Schiller	Sharfer	"	22	Sen&Jun	22	I.
Grammar	Whitney	"	55	Junior	16	I.
Schiller's Prose	Buchheim	"	55	Freshm	29	I.
Exercises	Comfort	Campbell	55	Sub-Fr	15	I.
Schiller, Dramas	Deuzel	Moore	21	Sen&Jun	22	II.
Lessing Laocoon	Kratz	"	32	Sen&Jun	22	II.
Grammar and Reader	Whitney	"	53	Junior	16	II.
German History	Taylor	" }		Freshm.	28	II.
Historical Ballads	Wagner	" }	53	"	28	II.
Grammar and Reader	Whitney	Campbell	53	Sub-Fr	17	II.
Lessing's Prose	Deuzel	Moore	56	Sen&Jun	18	III.
Deutsche Lyrik, etc.	Buchheim	"	56	Sen&Jun	18	III.
Schiller, Jungfrau	Worman	"	56	Junior	15	III.
Lessing, Minna von B	Buckheim	"	56	Freshm	18	III.
Reader and Exercises	Whitney	Campbell	57	Sub-Fr	17	III.
FRENCH.	PROF. C. W. BENTON.					
Racine, Andromaque	Jarves	Benton	56	Senior	19	I.
Moliere, Misanthrope	Joynes	"		"	19	I.
Grammarie, Francaise	Noel & Ch	"		"	19	I.
Grammar and Reader, 1 §	Bocher	"	56	Sophom	20	II.
" " 2 §	"	"		"	25	II.
Chateaubriand		"		Senior	18	II.
Corneille, Le Cid	J. Bue	"		"	18	II.
French Compositions		"		"	18	II.
Grammar and Reader, 1 §	Bocher	"	55	Sophom	20	II.
" " 2 §	"	"		"	23	II.
Fenelon, Telemaque, 1 §	"	"		"		II.
" " 2 §		"		"		II.
Guizot, Guil. le Conquerant	Dubourg	"		Senior	22	III.
Merimee, Colomba	Brette	"		"	22	III.
Michelet, Jeanne D'Arc		"		"	22	III.
Reader and Grammar	Bocher	"	56	Sophom	27	III.
Fenelon, Telemaque		"	56	"	27	III.
Girardin, La Joie fait, &c		"		"		
LATIN.	PROF. J. BROOKS, in charge.					
Cicero, Sec. 1	Chase & Stuart	Clark	52	Sub-Fr	18	I.
" " 2	" "	"	52	"	7	I.
Livy, Sec. 1	Lincoln	Hutchinson	51	Freshm	16	I.
" " 2	"	Clark	52	"	7	I.
Horace, Text	Chase & Stuart	"	52	Sophom	17	I.
" Essays &c.		"	34	"	17	I.
Exam. for Ent. and Cond		"			38	I.
Virgil	Chase & Stuart	Clark	51	Sub-Fr	23	II.
Livy	Lincoln	"	15	Freshm	20	II.
Sallust, Cat. and Jug	Weale	"	36	"	20	II.
" Essays, &c	"	"	20	"	20	II.
Plautus, Captivi	Harrington	"	35	Junior	12	II.
Cicero de Senectute	Chase & Stuart	"	15		7	
Examinations on Cond.					15	II.
Virgil	Chase & Stuart	Clark	55	Sub-Fr	21	III.

Subject.	Text Books.	Instructor.	No. of Exercis's	Class.	No. of Students.	Term
LATIN. (*Continued.*)		PROF. J. BROOKS, D. D.				
Tacitus			40	Sophom.	12	III.
Cicero de Amicitia		Clark	15	"	11	III.
Essays, &c		"	12	"	11	III.
Tacitus		"	10	Senior	3	III.
Virgil	Searing	"	20	"	3	III.
Examinations on Cond		"			18	III.
GREEK.		PROF. J. BROOKS, D. D.				
Xenophon	Brooks	Brooks	55	Sub-Fr.	9	I.
Homer	Davies	"	57	Junior	9	"
Xenophon, Memorabilia	Winans	Hutchinson	55	Freshm.	7	"
Xenophon, Anabasis	Boise	Brooks	51	Sub-Fr.	8	II.
Æschylus, Text	Woolsey	"	51	Sophom.	15	"
" Essays		"	45	"	15	"
Xenophon, Mem. and Symp.	Winans	Hutchinson	53	Freshm.	7	"
Examination on Conditions		Brooks	7			"
Xenophon, Anabasis	Boise	Brooks	57	Sub-Fr.	10	III.
Plato	Tyler	"	56	Sophom.	13	"
Demosthenes	"	Hutchinson	55	Freshm.	2	"
Exams. for Ent. and Cond.		Brooks	20			"
MENTAL AND MORAL PHILOSOPHY.		PROF. A. T. ORMOND.				
History of Philosophy	Lectures	Ormond	55	Senior	29	I.
Ethics	"	"	54	Senior	32	II.
Psychology	"	"	54	Junior	24	II.
Natural Theology	"	"	20	Senior	31	III.
Logic	Jevons & Lect.	"	57	Junior	27	II.
HISTORY.		PROF. A. T. ORMOND.				
Ancient History	Schmitz	Ormond	23	Sub-Fr.	28	I.
Mediæval History	Swinton	"	22	Freshm.	23	II.
Modern History	"	"	23	Sophom.	24	III.
History of Civilization	See Political Science, &c., below.					
POLITICAL SCIENCE, ETC.		MR. WM. W. FOLWELL.				
History of Civilization	Guizot	Folwell	36	Juniors	27	I.
General Philology	Lectures	"	13	Junior	28	I.
Civil Government	DeTocqueville	"	25	Senior	27	II.
Constitution U. S.	Lectures	"	10	Senior	27	II.
" Minn.	"	"	6	Senior	27	II.
International Law	Woolsey	"	8	Senior	6	II.
Political Economy	Lectures	"	49	Senior	34	III.
RHETORIC AND ELOCUTION.		PROF. M. L. SANFORD.				
Orations		Sanford	99	Senior	33	I.
"		"	99	"	33	II.
"		"	132	"	33	III.
Rehearsals		"	99	Senior	33	I.
"		"	99	"	33	II.
"		"	165	"	33	III.
Orations		"	96	Junior	32	I.
"		"	93	"	31	II.
"		"	93	"	31	III.
Rehearsals		"	64	Junior	32	I.
"		"	62	"	31	II.
"		"	124	"	31	III.
Rhetoric	Hepburn	"	60	Sophom.	43	II.
Orations		"	80	"	40	III.
Rehearsals		"	80	"	40	III.
Elocution		"	42	"	42	I.
Composition		"	12	Freshm.	25	II.
"		"	12	Sub-Fr.	32	I.
Elocution		"	12	Freshm.	23	III.
"		"	12	Sub-Fr.	[illegible]	II.

Subject.	Text Books.	Instructor.	No. Exercis's	Class.	No. Students	Term.
PUBLIC HEALTH.	**PROF. C. N. HEWITT.**					
Sanitary Science	Lectures	Hewitt	6	Senior	30	III.
School Hygiene	"	"	6	Sub-Fr.	50	III.
INDUSTRIAL DRAWING.*	**PROF. WM. A. PIKE, in charge.**					
Projection Drawing		Pike	54	Freshm.	11	I.
" "		Decker	54	Specials.	5	I.
Descriptive Geometry		Pike	52	Soph	19	II.
Geometrical Drawing		Decker	52	Sub-Fr.	14	II.
" "		"	52	Specials	10	II.
General Drawing		Pike & Decker	25	Evening.	51	II.
AGRICULTURE.	**PROF. E. D. PORTER.**					
"How Crops Grow"	Johnson	Porter	48	Junior	2	I.
Horticulture	Lindley	"	42	"	2	I.
Agricultural Chemistry	Johnson	"	44	"	1	II.
Climatology	Lectures	"	26	"	1	II.
Atmosphere and Soils	Johnson	"	16	"	1	III.
Scientific Agriculture	Pendleton	"	48	Senior	1	I.
Comparative Anatomy		"	26	"	1	I.
Farm Crops	Stevens	"	48	"	1	II.
Veterinary Medicine	Law	"	42	"	1	II.
Farm Animals	Stevens	"	32	"	1	III.
Practical Agriculture		"	Daily 3 Mos.	Special	22	III.
CIVIL AND MECHANICAL ENGINEERING.	**PROF. WM. A. PIKE.**					
R. R. Curves, etc.	Henck.	Pike	54	Jun. C. E	10	I.
Field Work		"	45	"	10	I.
Engr. Drawing		"	52	"	2	II.
Mechanics	Rankin	"	54	"	4	III.
Field Work and Drawing		"	54	"	4	III.
Surveying	Lectures	"	20	Freshm.	17	III.
Machinery	Rankin	"	54	Jun. M. E	1	III.
Vise Work		Decker	20	M. E&Sp	4	I.
" "		"	42	M E & Sp	4	II.
Forge Work		"	54	M E & Sp	4	III.
MILITARY SCIENCE.	**PROF. E. C. BOWEN, U. S. A.**					
Squad Drill School of Soldier	Upham's Infantry Tactics.	Bowen	20	Sophom.	36	I.
" "		"	20	Freshm.	22	I.
" "		"	20	Sub-Fr.	21	I.
" "		"	23	Sophom.	11	II.
" "		"	10	"	24	III.
" "		"	10	Freshm.	15	III.
" "		"	10	Sub-Fr.	22	III.
MUSIC.	**MR. WM. H. LEIB.**					
Vocal Lessons	Selected	Leib	30	At large	75	All.

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* All double hours.

REPORT OF EDWARD D. PORTER, PROFESSOR OF AGRICULTURE.

MINNEAPOLIS, MINN., DEC. 28th, 1882.

To the President of the University of Minnesota:

SIR:—I have the honor to present the following report of the Department of Agriculture of this University:

Condition of the Department when I was placed in charge:

(1.) Work in both instruction and experimentation had been suspended nearly one year.

(2.) No students in Agriculture in the University.

(3.) Farm condemned by the best farmers of the State as unsuited for its purposes, from both character of soil and location.

(4.) Campus and grounds adjoining College of Agriculture broken, barren and unsightly.

(5.) A general feeling of uneasiness and dissatisfaction among the farmers of the State and a tendency to criticise the management of the University in this department.

My first year's work consisted in making myself acquainted with

I.

The farmers of the State through their recognized organizations, as the

(1.) State Agricultural Society.
(2.) State Horticultural society.
(3.) State and County Granges.
(4.) Amber Cane, Dairymen's and Woolgrowers' Association.

II.

To familiarize myself with the past work of the department and the wants of the class for whose benefit it was organized.

III.

To test by personal examination the adaptation of the Experimental Farm, Plant House and grounds to the wants of the Department.

IV.

To devise such plans and make such suggestions as observation and experience deemed necessary to give the greatest efficiency to the Department.

Among the plans proposed and sanctioned by the Board of Regents, were

(1.) Sale of Experimental Farm.

(2.) Purchase of new farm for Experiment Station.

(3.) Erection of addition to Plant House.

(4.) Enclosure and improvement of Campus.

(5.) Establishment of Illustrative Horticultural grounds, and Arboretum on grounds so enclosed and improved.

(6.) Organization of "Farmers' Lecture Course."

Results of second year of work.

(1.) As much work of experimentation carried on as the uncertain possession of the ground, and its unfit condition would permit.

(2.) The employment and instruction in practical agriculture and horticulture of twenty-three students.

(3.) The instruction in the "Course in Agriculture" of two students and the graduation of one with degree B. A.

(4.) All the regular organizations of farmers of the State met with, and their good will and co-operation secured and hostility disarmed.

(5.) The old Experimental Farm has been surveyed, platted, put into the market, and about one-half of it sold, realizing an amount sufficient to purchase and thoroughly equip the new farm.

(6.) A tract of land admirably adapted for the purpose of an Experimental Farm and Station has been selected and purchased. It has been visited and examined by committees from the State Grange, the County Grange, and the State Horticultural Society, and its selection most cordially approved.

(7.) The Addition to the Plant House has been completed, and under the careful and intelligent management of Mr. Bowen is accomplishing the objects of its erection, in a manner creditable alike to him and to the University.

(8.) About 25 acres of the campus have been enclosed by over

4000 feet of neat and durable steel wire fencing, the unsightly hills of sand and hollows have been graded down, over 2000 loads of manure have been hauled, composted and spread, one crop of Hungarian grass has been grown and plowed under for fertilizing purposes, and sown to winter rye, preparatory to permanent seeding to grasses. 230 shade trees, one-half Elm, one-half Box Elder, have been planted, of which 225 are living and in good condition.

(9.) Four acres of the above enclosure have been heavily fertilized, all stones removed or sunk beneath the plow, the ground subsoiled, the city water introduced and distributed so as to irrigate the whole tract, and upon this was grown for illustration every variety of garden vegetable adapted to the climate and soil of Minnesota.

(10.) The public grounds of the University have been kept free from grass and weeds, a portion of the trees have been trimmed, holes and old foundations filled up, walks arranged, graveled and sodded, flower beds and stands made and filled and kept in order for the decoration of the grounds and buildings, walks and roads kept free from snow and mud, and over eight hundred cords of wood hauled from the piling ground to the University furnaces.

(11.) The old farm has been operated, up to the date of sale, yielding in addition to the experimental work, about fifty tons of hay, 150 bushels of oats, and 100 bushels of corn, most of which is yet on hand, and 110 bushels of onions.

(12.) As the new farm is yet in the posession of the tenant under lease from the previous owner, we could only operate certain portions of the ground, and by his permission. But I have seeded down six acres to clover and timothy, have raised 300 bushels of potatoes, 100 bushels of corn, ninety bushels of varieties of seed wheat, have cleaned up and grubbed out eight acres of thicket in fields and along the roads, have levelled the ground, prepared the foundations, and hauled the stone for the commencement of the farm buildings, and under the direction of the Executive Committee have contracted for 500 perches of stone, and they are now being delivered on the ground for next season's work. The farm produced this year under the management of the tenant about 975 bushels of wheat, 1,000 bushels of oats, 300 bushels of potatoes, twenty tons of hay, and 300 bushels of corn, one-third of which belonged to the tenant. A portion of the wheat has been sold and the balance of the crops is reserved for next season's seed, and feed.

(13.) Since the sale of a portion of the old farm, I have had all the fencing removed from the grounds sold, and hauled out to the new farm, thus saving several thousand feet of fencing, and a large lot of good posts, for future use.

(14.) A very full exhibit of plants, seeds and garden products was made at the State Fair at Rochester, and received the most flattering notices from the press of the State, and the State Agricultural Society passed a series of resolutions, thanking the University for its exhibit, and strongly endorsing the Department of Agriculture, and asking the Board of Regents and the Legislature to thoroughly equip the new experimental station, in buildings, stock and machinery for work that shall give honor to the University, and confer lasting benefits upon the State.

(15.) The Farmers' Lecture Course has been organized, and the results of this first effort were eminently satisfactory. Instead of a membership of thirty, as required before the commencement of the course, 255 persons other than those already in connection with the University were in attendance upon these lectures.

I have caused the lectures of the first course to be reported, and have attached the same to this report, and trust you will find therein much of value that is worthy of preservation.

In conclusion permit me to indicate the line of work in this Department for the ensuing year, and of which I respectfully ask your approval.

(1.) The continuance of our work around the Agricultural College, making the grounds, now prepared for the work, the "Arboretum" of the University, and illustrative of the work in the department of Horticulture, reserving the Experimental work in this line for the Experimental Farm.

(2.) The removal of all the old barns, and stables and houses from the campus.

(3.) The removal of the barn from the old farm to a lot contiguous to the campus, and fitting it up for the University barn, where the teams, tools, seeds and feed, constantly needed on the grounds, may be securely and conveniently housed and protected.

(4.) The immediate and thorough equipment of the new Experimental Farm with all the appliances of buildings, fences, stock and machinery necessary to make it a *First-Class Experimental Station*, and a credit to both the University and the State of Minnesota, and which by its management will command the confidence and respect of all agricultural interests.

As soon as we are prepared to carry on the legitimate work of an Experimental Station, combined with practical and theoretical instruction in agriculture, attention will be attracted to the work, interest will be excited among farmers, they will see how their sons and daughters and themselves, can be benefited by the work of the University, and our Agricultural class rooms will no longer present a "beggarly array of empty benches."

Permit me to call your attention to another matter in connection with our Experimental Farm.

The acquisition of some additional land, either by purchase or condemnation, for the following reasons:

I.

Within less than five years we shall badly need the additional land for our work.

(1.) We have now 155 acres, 80 acres of this will be used at once for illustrating the best methods of culture and rotation of farm crops; wheat, corn, rye, oats, flax, barley, beans, beets, potatoes, sugar cane and the whole range of grains.

(2.) We shall use 20 acres in experimental plats which can never be used for general farming.

(3.) The remaining 55 acres is in woodland and should not be cleared off, but retained for our buildings, museum, work in forestry, and kept for our sheep range.

(4.) Leaving us *no ground* for permanent meadow or pasturage, no facilities for stock or dairy.

II.

Within five years it will be impossible to obtain suitable land contiguous to the Farm, as it will be all occupied for business or residence purposes.

III.

Land can now be purchased adjoining the Farm and most admirably adapted to our purposes, at a very moderate price.

IV.

One tract of *five acres* is needed to square out our grounds on Como Avenue, this will require condemnation.

V.

Law authorizing the sale of the old Farm, requires money received to be reinvested in the new Farm, and such investment will be the best possible use of the money.

Respectfully submitted,
EDWARD D. PORTER.

FARMERS' LECTURE COURSE.

The management of the Agricultural College have long felt the need of an opportunity for bringing their work more directly to the notice of the agricultural classes of Minnesota's people. While every opportunity has been offered for a full and complete course of instruction, both in scientific and practical agriculture, to the people of the State, very few have seen fit to avail themselves thereof, and while the investigations, experiments, and general accumulation of knowledge by those in charge of the Agricultural College, and fruit and experimental farms proved to be very important and of much value, it was found necessary to adapt means to bring them more directly to the attention of the public.

In order to accomplish this object it was suggested as long ago as the year 1875, that a convention of farmers be held at the building of the College of Agricultural during the winter, and that as many as could be induced to attend the meeting be given not only the results determined by the experiments conducted here, but that prominent educators in special agricultural branches, from abroad be invited to appear before them, and thus, together with mutual discussions and suggestions, make the meeting not only valuable and instructive, but interesting as well. At that time Prof. Chas. Y. Lacy, who was then in charge of the College of Agriculture, attempted to organize a course of lectures upon the plan thus mapped out, but failed for lack of co-operation by the farmers of the State. While the plan was not abandoned it was permitted to "sleep" until the professorship was intrusted to me. I at once set about forwarding the work in this direction, and with the result we have to offer in the present report, quite full minutes of the first of a course of lectures before the farmers of the State, which we know can be made of incalcuable value to them, and which we hope to be able to continue from year to year.

The interest manifested and the encouragement given by the agricultural interests of the State warrant further efforts in this direction, and arrangements have been perfected for a more extended course of lectures this present winter, commencing Jan. 16th, and extending through four weeks, the details of which I shall have the honor to present to you in my next report. The first course was inaugurated upon the 28th day of February, 1882, the first lecture being given by the Hon. Geo. B. Loring, Commissioner of Agriculture of the United States. In introducing Mr. Loring, President Folwell gave the following review of the history of the accomplishments and condition of the agricultural department of the State University, and said:

"This is an important day in the history of the Agricultural College. During the twelve years which have passed since the College was organized, large sums of money have been annually expended and extraordinary efforts put forth to render the department efficient and attractive.

"The average attendance has not much exceeded one student per year. Yet, throughout this whole period, the majority of our students, ranging in number from 200 to 350 per annum, have been the sons and daughters of farmers, who have deliberately turned aside from the doors of this College."

"The meaning of this fact is that the farmers will not have an agricultural education, but prefer to follow a general scientific or literary course of studies. The regents and faculty are powerless to prevent this state of things. Turning to other States and examining the institutions and departments organized under the act of Congress of 1862, we shall find the same fact. That the Agricultural Colleges, or departments connected with State Universities, have attracted but very few students is a matter of notoriety, and is vigorously urged by some as a reason why the Colleges should be separated from the Universities. The separate Agricultural Colleges enroll and instruct large numbers. An inspection of these institutions, however, will show that but a small proportion of the students are pursuing courses of study in Scientific Agriculture with the view of becoming actual farmers. These schools are mostly excellent scientific and technical establishments, carrying on also a considerable amount of classical or literary work. Some of their friends claim in justification that they are thus carrying out the law in its proper intent—that they are, and always ought to be, schools for farmers, not schools of farming.

"This University is such a school, its chief business is the education of farmers.

"It is not then a local, it is a general fact that very few young men can be induced to pursue long and regular courses of study in scientific agriculture. Out of the many reasons for this fact only two may be mentioned:

"(1.) It is the sons of small farmers, who, foreseeing that there will soon be no room for them on the quarter section, go to college. Such persons inevitably choose those callings in which an education is itself a capital. (2.) Should any of them, however, by science and practice, through a term of years, fit themselves for scientific farming, what could they do? Can a man farm without land, animals and machinery? In Europe the graduate of the Agricultural College expects to enter the service of some lord proprietor as a salaried expert or manager.

"We have no such landlords unless they be our "bonanza farmers". Believing in the supreme advantage to a State of a yeomanry of small holders, I cannot wish permanent success to this kind of agriculture—I am convinced that the training of experts in scientific agriculture, by long and graded courses of study, is to be but a small part of the work of the Agricultural College. I am a firm and steadfast believer in agricultural, technical and art education. There is work for the Agricultural College, work of many kinds. If there were time I would like to remark upon that of experimentation, and to commend the excellent service performed by Professor Chas. Y. Lacy, during his connection with this College.

"In order not to be a misnomer the Agricultural College must be a professional school. I never thought it either profitable or honest to give students in general science a homeopathic dose of one or two agricultural studies and dub them "agricultural students." What would be thought of a law or medical school which should undertake to teach ancient history, the theory of equations, or the nebular hypothesis? The Agricultural College may leave to the schools and colleges the general education. The importance of this day to our Agricultural College lies in the circumstance that we are inaugurating a new departure in the proper professional work of the College; not by undoing anything or recalling any advantages heretofore offered, but by adding to our numerous courses of instruction a new one, the "Farmers' Lecture Course." It has long been a wonder with me why the founders of Agricultural Colleges have not taken a lesson from the organizers of law and medical colleges. These colleges have never undertaken the impossible task of combining a general education with a professional course, in a graded course extending over three, five or seven years. What have they done? They have collected a body of students from all classes and grades of society, with all shades and varieties of preparation, and proceeded to instruct them, as best they could, in the things lawyers and physicians need to know. I cannot commend all that these schools do, but it is plain, I think, that their founders were wise in their generation. Why shall we not derive from them what is good in their system and apply it in agricultural education? Here are on the one hand a goodly number of men of science who actually long for the opportunity to communicate their knowledge to men so much needing to use it. On the other hand a vast body of working farmers, gardeners, dairymen, etc., are just as eager for the light of science. It is respectfully submitted that it is a suitable function for the Agricultural College to bring these consenting parties face to face. This is what we are doing to-day.

"For many years we have waited for such a consummation. That we see it now is due to the intelligence and activity of Prof. E. D. Porter, who has organized and will conduct the work of the course. The lectures will be open to all persons without fee, examinations or other conditions. The daily programmes will be published in the journals of the city.

"We presume upon the success of this course. There must be many gentlemen and ladies who can make it convenient to attend upon the lectures of the accomplished and distinguished instructors who have been engaged, and announced success this year means a still wider and richer course next year. The board of regents will spare no pains or expense within their reach, to serve and subserve the farmers of Minnesota. They will gladly set the table if the farmers will clear it.

"It is a happy omen that the farmers' lecture course is opened by the United States Commissioner of Agriculture. That the distinguished gentleman now filling that office, should be willing to break away from his multitudinous engagements, and travel 3,000 miles to give us this "send off," may assure us of his interest in and appreciation of our enterprise.

"I have the honor ladies and gentlemen, to present the Hon. Geo. B. Loring of Massachusetts, United States Commissioner of Agriculture."

Thus introduced by President Folwell of the University, commissioner Loring addressed the convention upon the subject of the

"MUTUAL RELATIONS OF AMERICAN INDUSTRIES,"

as follows:

"*Gentlemen:* I have been induced to leave for a time the immediate duties of my department and join you in your deliberations, by a deep desire to encourage in every way the industry which you represent, and to assure you that the good will of the federal government is with you in all your endeavors. You will not expect me to discuss in a general assembly like this, any one specific question of practical agriculture, surrounded as I am by those whose success indicates a thorough understanding of their business, and whose presence here is a proof of their determination to investigate, and collate, and compare. I read on the fields about me. the record of the farmers of the Northwest, and the lesson they have learned by experience, and have taught their country. While I congratulate you on the progress of agriculture here, and the advancement of the farmer in his work, on the tribute which science is constantly paying you, and the growing confidence you feel in the results of scientific examination and experiment, on your skill in managing your crops and in caring for the animals which constitute so large a share of your wealth, I beg you to bear with me while I call your attention to the relations which exist between your controlling industry, and those great occupations which constitute the prosperity and power of the American people.

"The rapid growth of American industry constitutes one of the most important and interesting chapters in the history of civilization. The stories of discovery and conquest, of commercial adventure and military power, have charms which more prosaic occupations are not expected to possess. And yet they all sink into insignificance before the recital of the steady and triumphant march of that vast army of busy and devoted sons of industry who have cleared the land and opened the mines, and chained the waterfalls, and stretched the great highways of travel and transportation over valleys and through mountains, and created churches and school houses, organized cities and towns, and fed and clothed and educated themselves, and have filled the commerce of the world with the fruits of their toil. The chosen career of the American people has been a career of peaceful industry, and their achievements on this field have won the admiration of the world from their infancy to their years of maturity and strength. More than three-quarters of a century ago, Sheridan exclaimed in the house of commons: 'America remains neutral, prosperous and at peace. Turn your eyes to her; view her situation, her happiness, her content, observe her trade and her manufactures, adding daily to her general credit, to her private enjoyments, and her public resources, her name and government rising above the nations of Europe with a simple but commanding dignity that wins the respect, the confidence and the affection of the world.' And contemplating the genius of our institutions and the vital force of our republic. De Tocqueville declared, 'Then will there come a time when there will be seen in North America 150,000,000 of men equal among themselves, who will all belong to the same family, who will have the same point of departure, the same civilization, the same language, the same religion, the same habits, the same manners, and among whom thought will circulate in the same form and paint itself in the same colors. All else is doubtful; but this is certain. Now, here is a fact entirely new in the world, of which imagination itself cannot grasp the import.' Unchecked by war, and defiant of all disaster, this republic has increased in population at the rate of a million a year during the last ten years, rivaling now every country in the world except Russia, and attracting to her shores vast communities of people from those impoverished and crowded nationalities. Thriving states and prosperous towns spring up here like magic. The products of new and fertile lands are borne to the great centers of trade which are created everywhere by the necessities of a teeming population. The civilization which is advancing with such rapid strides from sea to sea is indeed a civilization of thrift, intelligence and morality. Prosperous industry is here the pioneer of education, the cultivated farm and a profitable mill preparing the way for the library and the lyceum, the school house and the meeting house. Conscious of the responsibilities and duties which attend them wherever they go, and proud of that individuality which freedom bestows upon every man who enjoys her influence, this aspiring and industrious people of ours has endowed schools and colleges on every hand, has established more than 70,000 churches, has provided places of worship for more than 20,000,000 of worshipers, and has church property valued at more than $300,000,000. You will pardon me, I am sure, if I rehearse to you that wonderful development of industry out of which this mental and moral and religious culture has grown, and for the encouragement of which you have assembled in one of the great agricultural centers of the great agricultural section of our country. I would avoid this array of figures were it possible to present in any other way a picture of which every American ought to be proud, and which naturally belongs to a proper delineation of the relations which all our industries bear to each other in their united efforts for American growth and prosperity. In agriculture the increase has been astonishing, and accounts for that vast internal and foreign commerce out of which has grown so much of our financial success. It is not necessary to go back a half century or even twenty-five years to obtain the most gratifying evidence of our progress in the work of tilling the soil. But starting in 1870, at which time we had reached an enormous production in proportion to our population, and making our comparisons with the returns of 1880, we may learn what may be accomplished in a single decade by a people constantly increasing in numbers and occupying new lands. In 1870 the amount of cotton produced was 4,352,317 bales; in 1880, more than 6,000,000 bales. In 1870 the amount of Indian corn raised was 769 944,549 bushels; in 1880, 1,754,449,435 bushels. In 1870 the wheat crop was 287,745,626 bushels; in 1880, it was 459,667,043 bushels. In 1870 the crop of oats reached 282,107,157 bushels; in 1880, 407,859,033 bushels. In 1870 the tobacco crop amounted to 262,735,341 pounds; in 1880, it amounted to 473,107,573 pounds. The increase of agricultural products was nearly 100 per cent. in these ten years. And in the last year of this decade, from 1879 to 1880, out of this vast increase of our crops and products, our cattle export rose from $13,000,000 to $14,000,000; corn from $43,000,000 to $50,000,000; wheat from $167,698,000 to $190,546,000; flour from $35,000,000 to $45,000,000; cotton from $209,852,000 to $245,534,391; beef from $7,000,000, to $12,000,000; lard from $28,000,000 to $35,000,000; and pork from $5,000,000 to $8,000,000. Mark, also, the growth of American manufactures in half a century. In 1830 the amount invested in cotton manufactures was a little more than $40,000,000; the number of spindles was a million and a quarter. The number of males employed was 18,539, and the number of females was 38,927. The amount of cotton used was 77,759,316 pounds. Fifty years have passed away, and the number of spindles has increased to 19,769,147. The amount of cotton used in 1880 was 793,240,500 pounds. The number of persons employed is 181,628, and the amount of capital invested in mills and subsidiary work is more than $225,000,000. Of our woolen manufactures the statistics are more imperfect. But I have ascertained that in 1840, the capital invested in this enterprise was $15,765,124, the number of pounds of wool used was 50,808,524; the number of hands employed was 21,342; and the value of the product $20,696,699. In 1880 the values of woolens, worsteds, carpets and hosiery produced was $234,587,671; the amount of wool used was 187,616,605 pounds; the wages paid amounted to $45,959,012; the total value of the materials used was $145,141,790. The product increased from 1870 to 1880 nearly $20,000,000. In 1870 the silk productions of the United States were valued at $12,210,662; in 1880 at $34,410,463.

Fifty years ago the shoe and leather industry had hardly a national reputation. In 1870, however, there were 4,237 tanneries in the United States, employing 20,784 hands, using a capital of $42,710,505, paying in wages $7,934,416 annually, producing leather valued at $86,169,883 using more than $9,000,000 worth of bark, nearly 9,000,000 hides, 9,664,000 skins. There were also 3,085 currying establishments, employing 10,000 hands, absorbing $12,000-000 capital, and producing $54,191,167. There were, moreover, 3,151 establishments for the manufacture of boots and shoes, employing 91,702 hands, with a capital of $37,519,019, paying in wages $42,504,444 annually, using $8,502,718 worth of leather, manufacturing boots valued at $50,231,470, and shoes valued at $93,846,203, with a production valued at $146,704,000.

The growth of the iron and steel industry has been equally remarkable. In 1810 we produced but 50,000 tons of iron and our largest furnace could yield but 1,500 tons annually. In 1830 the product was 165,000 tons; in 1040, 315,000 tons; in 1848, 800,000 tons; 1860, 1,000,000 tons. In 1880 the iron and steel works of the United States produced 7,265,100 tons, as against 3,655,215 in 1870. The capital invested was $230,971,884; the number of hands employed was 140,978; the wages paid amounted to $55,476,785; and the value of all the products was $296,557,685.

In the manufacture of machinery the capital invested has increased from $15,000,000 to $40,000,000 in twenty years, and the annual value of the product is more than $20,000,000.

The aggregate annual product of the manufacturing and mechanical industries of the United States is now more than six thousand millions of dollars. Of this vast product less than two hundred millions are exported. And of the $9,000,000,000 produced by agriculture less than 10 per cent. is exported. On the self-supporting power of the American people and on the mutual relations existing between our industries we can dwell as Americans with the most profound satisfaction. I have alluded to the producing power of the American people, but in order to understand the relations which exist between our industries we should not forget our consuming capacity also. Of the $15,000,000,000 produced by our various industries, nearly $14,000,000,000 are consumed at home. It is the home market to which the American producer turns most naturally, let his industry be what it may. In fact the law of our largest and most widely diffused industry, agriculture, is the cultivation of those crops which are adapted to a local market, and the occupation of lands lying near that market. Not yet has this law become universal, it is true; but it applies to all the older and thickly settled sections of our land, and goes with diversified industries wherever they create large cities and towns. Fifty years ago the farmer was compelled to seek his market near home on account of the difficulty which attended the transportation of his crops. But the settling of new and remote lands and improved methods of transportation rendered the growing of the great staples a necessity, and corn, wheat and provisions occupied the farmer's attention, and opened to him remote and even foreign markets for his grains. This frontier farming, however, is but temporary, and must be followed by that systematic husbandry which constitutes the legitimate business of the American farmer and carries him back to those days when agriculture was almost the sole business of the country, and when a farming community was uniformly prosperous, when prudent and industrious. While our large towns and our manufacturing states, therefore, provide markets for a large portion of the products of the pasture and grain fields of the West, they also support that more profitable system which consists in a careful cultivation of the soil and in the economical management of small farms. The trade of this home market to which I have alluded is immense, and the sources of supply in all their variety form an interesting topic for consideration.

New England requires about 20,000,000 bushels of wheat, and produces only 1,250,000. New York uses 30,000,000, and grows about 12,000,000. The supply of this deficiency comes from the West, from the Ohio valley and the prairies west of the Mississippi and the Missouri, and costs from $40,000,000 to $50,000,000 in years of good production, but still more in this year of comparative scarcity. To assume, however, from the fact that New York goes West for six-tenths of her wheat supply that wheat-growing is an unprofitable industry there, would be an unsafe and unreliable conclusion. There are eight counties south of Lake Ontario which yielded in 1870 6,089,876 bushels on 377,269 acres, or 18.6 bushels per acre, or more than 50 per cent. above that of Minnesota or Dakota, and somewhat higher than that of California for the same year. Thus, an important part of the deficiency of other counties in New York was supplied by the surplus grown in the Seneca valley and its neighborhood. There is another district lying eastward toward the Hudson, and southward toward the Delaware, that finds a greater profit in the dairy—making a production in butter and cheese worth far more than the grain procured from the West. Not only are the home wants in the dairy products supplied, but a large share of the 120,000,000 to 140,000,000 pounds of cheese exported from year to year is credited to this district, bringing a vast amount of money from Europe, a part of which only is contributed to the aid of the western wheat-growing. Going still nearer the seaboard, to Dutchess and Westchester and the fruitful land of Long Island, we find more people and less wheat, and a soil devoted to market gardening, yielding under the most favorable circumstances a gross product worth $1,000 per acre, enough to buy a quarter section of superior wheat land west of the Mississippi. In the immediate neighborhood of New York city the product of market-gardening swells to millions of dollars. Ten years ago the census reported more than a million dollars' worth in Queens county alone, and the present enumeration must, when tabulated, show an immense increase for this suburban district. The neighborhood of Boston and Philadelphia and every other large city is monopolized by market-gardens, and the country about Norfolk, Va., is mainly devoted to fruit and vegetables for northern consumption. The fruits of the country, a perishable commodity, must be produced as near as possible to the point of principal consumption. The domestic fruits alone furnish a trade of large volume and value. New York city has a trade in domestic fruits of more than nine millions of dollars; Chicago, which supplies the great Northwest, has about as much; and the other large cities of the country would swell the total amount to about $60,000,000, including the great amount now sent from our southern latitudes. Could all the fruits sold in smaller cities and villages be added, and those consumed on farms or village lots be enumerated, it is probable, judging from careful deductions from available data, that the annual value of the fruits of the United States would not fall much below $200,000,000. Thus, the distribution of farm products is found to arise from a multiplicity of causes, soil, climate, nearness to large cities, prices of land and labor, facility for obtaining labor at required times or seasons, skill in special industries developed by long practice, conservative persistence in time-honored usage, and many other causes, serve to distribute in patches, large or small, the crops which furnish the products of American agriculture. The great cereal crop of the country, Indian corn, which is only exceeded by grass in universality of distribution, constitutes more than 1,700,000,000 of the 2,000,000,000 bushels of grain of 1879. It is found in every state and in every territory with one or two exceptions. Yet this crop cannot escape the law of special local attraction. The three States, Illinois, Iowa and Missouri yield 800,000,000 bushels, or 45 per cent. of the crop, and only seven states including Indiana and Ohio on the east, and Kansas and Nebraska on the west, have ever any considerable surplus above the requirements of home consumption. The remaining thirty-one states and all the territories produce together but 37 per cent. of the crop, at only the rate of nineteen bushels per acre, but half the rate of the yield of the corn belt. The receipts at the seaboard cities for exportation and consumption, including all kinds of grain, ground and unground, aggregated 352,921,452 bushels in 1879, and 369,559,607 in 1880. The whole eastern movement of western grain, including shipments to interior points on the Atlantic slope, must somewhat exceed 400,000,000 bushels, not more than one-sixth of the total production of an abundant year, and less than one-fourth of the lightest crop the most disastrous season is likely to yield. The relations which are thus established between the agricultural and manufacturing interests of our country, not only affect the material prosperity of the farmer, but they provide him with that social enjoyment upon which the happiness of an educated people largely depends, and rouse him to that energetic action which gives strength to all his powers. The isolation of farm life incident to sparsely settled regions, is one of the trials which the American is anxious to avoid; and when he leaves the outlying farm and secures a home nearer the haunts of men, he places himself within reach of the lyceum and library, and easy and convenient intercourse with his fellow men. The comforts and adornments of his home are increased; and farming becomes to him an occupation analagous to those branches of business which tempt men away from the loneliness of the country to the pleasures and opportunities of the town. The tendency of the rural population of some sections of our country to abandon the exhausted farms and seek lands nearer a populous market, is by no means an element of agricultural decline. It indicates rather a disposition to take advantage of those circumstances which lead to more active industry and more profitable labor. It is the same spirit of enterprise which has induced many farmers to abandon general agriculture and devote themselves to special crops, and has led the casual observer to infer that the cultivation of the soil was being abandoned. I have known the statistical returns of many evidently thrifty and prosperous communities to indicate a reduction of the products of the farm, and to lead to the supposition that because the cereals and annual products were diminishing the lands were deserted. But a more careful examination has always revealed the fact that it was a change in the industry alone which had taken place, and that those crops which met with competition from the cheap and fertile land of the West had been substituted by the products of the market-garden with all the profit which goes with this mode of manipulating the land. As this system extends, and manufacturing cities and towns multiply, the returns of our farms will be largely increased, and the average yield of our land per acre will be greatly enlarged. It is the intimate relation between agriculture and manufactures which makes general farming what it is, and will gradually make American farming what it should be. Now, the relation existing between the cotton plantations and the market created by American manufactures is so deeply interesting to every agricultural association which would consider the wants, necessities and chances of the entire country, that I trust you will allow me to consider it here. Of the total crop of 1870 and 1871, of 4,352,317 bales, 1,110,196 were consumed in the United States. Of the total crop of 1874-'75, 3,852,961 bales, 1,193 005 bales were consumed in the United States, and of the crop of 1880-'81, of 6,605,750 bales, 1,938,937 bales were consumed in the United States. The increase in home consumption during the ten years from 1870 to 1880 was 828,741 bales. This increase is of the greatest importance considering the fact that the expenses on cotton sold in the English market are nearly two cents per pound in freight, port charges and loss of weight, and the average price in 1880-'81 in Liverpool is 6.48 pence, and in New York 11.34 cents per pound, the advantage of the American market being nearly 2 cents per pound to the producer. This important relation will continue to increase in value as American manufactures extend, and the home market is enlarged, and will undoubtedly, produce an increase in the average yield of cotton per acre, and in the ultimate uniformity of the crop in the cotton states, allowance being made for the difference in soil and climate. This, added to a wide diversity in farming which will be adopted, will do much to develop the agriculture of the Southern States. It is, undoubtedly true now, that the cotton belt needs variety of crops to fill the vast unoccupied areas not suited to the cotton plant. Nine-tenths of the superficial area of these States yield no production in agriculture except in a limited degree in pasturage and wool product. But three acres in every hundred are in cotton, which occupies one-third of the breadth of the land actually cultivated. The cotton area in 1879 was 14,462,438 acres. The area of ten cotton states is 456,000,000 acres. The cotton crop is not evenly divided in these states. It is almost unknown in the mountain system of the South, slopes as well as summit, and broad table-lands of high elevation, suited only to the products of high temperate latitudes, mixed farming, grain-growing, dairying, and orcharding. It is grown mostly on the alluvial soils of the great rivers, the limestone belt of southwestern Georgia, central Alabama and western Mississippi. In general terms, one-tenth of the counties yielding cotton produce half that crop. The largest average yield per acre, according to the census, discloses the local belt of greatest productiveness as follows: The richest cotton land in the States is on the Mississippi above and opposite Vicksburg. The highest county averages in three States unite to prove the superiority of this district; East Carroll, in Louisiana, Chicot, in Arkansas, and Washington in Mississippi, respectively, stand for the largest rate of production in these States and in the cotton belt, yielding in 1879 but little less than a bale per acre.

Consider now the benefit which the manufacturer derives from his free and intimate relations with the agriculture of the country. On the one hand, drawing his raw material largely from the immense and various resources of our country—iron, cotton, wool, hides—and on the other hand, finding a home market in the great agricultural regions, the American manufacturer possesses opportunities and advantages hardly known to any other country on earth, and illustrating most forcibly the self-supporting power of our people. So closely are these interests united that what affects one naturally affects both. The same policy which has been extended over our mills has been extended also over our fields, and the results in both cases demonstrate its true value. While the American manufacturer has furnished the American farmer with almost all his necessary articles, such as cotton goods and fabrics, shoes and boots, axes, forks and spades, shovels, hoes, harrows, plows, rakes, cultivators, reapers, mowers, wagons, tin-ware, glassware, cheaper than they can be purchased in the English market, the American farmer has furnished his products, wool, cotton, provisions and grain, at rates established by our own supply and demand, and not in accordance with the rates fixed abroad. The traffic is free and equal, and it is between parties enjoying equal privileges and opportunities, rates of interest, wages of labor, taxes, social and civil expenses, all being regulated by one system and varying only with different localities. As the two great pillars of

American industry, they have received equal consideration from the government. Not only is a duty laid on goods of foreign manufacture, but there is also laid on all animals a duty of 20 per cent; on wool from 10 to 12 per cent. per pound, and from 10 to 12 per cent. *ad valorem* added; on sugar from 2 to 5 cents per pound; on corn 10 cents per bushel; on barley 15 cents per bushel; on wheat 20 cents; on oats 10 cents; on butter and cheese 4 cents per pound; on tobacco leaf manufactured, 35 cents per pound; and the American farmer may well remember that under this policy the clip of wool in this country has risen from 60,000,000 pounds in 1860 to 250,000,000 in 1870, and that in our advancing agriculture we have devoted to wheat 50,170 square miles, to corn 80,610, to oats 20,500, to barley 2,810, to hay 42,080, the corn and wheat alone covering a larger area than the United Kingdom of Great Britain and Ireland; and these two great producing industries, engaged in supplying each other with all that enters into the material comfort and welfare of life, at the lowest possible rates, may also remember that their products are now transported on American steel rails costing $60 per ton, as against $140 per ton when furnished by the rolling-mills of England, and with freight rates reduced accordingly; and let me say you are going to make it still better before your mountains of iron are exhausted. When these two important and fundamental industries united in the work of developing American resources, it is not to be supposed that they who laid the foundations of this union anticipated the great and radical change which has taken place since their day. They could not have foretold the ocean-defying steamship and the land-defying railroad and the time defying telegraph. They could not have listened amid the quiet repose of their luxuriant farms for the busy hum of great cities. But they performed their work well in their day, and generation, and they set an example of industry and foresight which we may well follow. And I am compelled to believe that they anticipated the time when the people of this country would be engaged in mutual industries for mutual support, and when the 12,000,000 of people of their day would become the 50,000,000 of our own, busy and consuming in the great commercial and manufacturing centers, busy and producing in the great agricultural regions, each industry leaning on its fellow, and all united in establishing American supply for American markets and regulating prices in accordance with the wants of American labor and the value of American labor and the value of active American capital. The production of supplies and the existence of a market have always created a necesity for a system of transportation which constitutes one of the co-operative industries of society. The modern methods of transportation by steam, both on land and water, have given new value to lands, new opportunities to mills, new markets and values to crops, and it may be safely said that the addition of a powerful and a rapid means of transportation has not only given new life to all the old industries, but has added a new one of inestimable value and importance. The labor and expense of exchanging commodities have been so far diminished in our day that every producing industry is now able to employ its time and means to the best possible advantage. No time is now wasted by the manufacturer in traveling from his mill to his market, none by the farmer in transferring his crops from his fields to the consumer.

"No limit is now put to the capacity of the mill, the capital absorbed and the hands employed, by distance and obstacles on sea and land. The farmer whose time and means and horses were fully employed in hauling the crops of a hundred acres to market fifty years ago, can now employ his force at home in increasing the crop of ten times that area of land, while it is harvested and borne to market by machinery. Lands which were once useless to the cultivator are now brought by rail to the very doors of the market required by their crops. And not only is the transporting capacity of each individual increased, but the force which can be retained for work on the land is vastly enhanced, as well as the profit on the crop itself. When, many years ago, the railroad from Springfield, Ill., to the Illinois river was opened, it was announced in a leading newspaper of that day: 'One week before the railroad was finished, corn could be had here in any quantity at 15 cents per bushel; now not a bushel can be had for less than 25 cents.' With a system of farming which I have defined and a system of transportation which we possess, the producing power of American labor and land is almost unlimited.

"The relations which have been established between these active and vigorous industries to which I have alluded, have produced upon society, moreover, a degree of mental energy and general intelligence, never equaled in any age of the world. In the affairs of life now, a man's head is considered to be worth as much as his hand, the relative market value of these two commodities having materially changed since the 'common and concurrent mind' began to assert its supremacy. The necessity for economizing and utilizing labor in every department of business has created a necessity for clothing labor with some degree of intelligence, and out of this elevation of practical service has grown that active, vigorous and untiring faculty for invention which forms one of the striking characteristics of the present age. Mark the amount of intelligence required to manage and run our railroads—the foresight, prudence and comprehension of the president, the watchful, systematizing power of the superintendent, the activity and self-possession of the conductor, the headlong courage of the engineer, who plunges through mountains and overrides valleys in his career, the laborers who grow intimate with the vast and intricate mechanical forces employed in this great civilizing business, and it is easy to see why it should demand and create intelligent labor, an aggregation of active and untiring intellects, all acting on each other from the highest to the lowest, in a way unknown to slower and more circumscribed systems of travel and transportation. The constant and rapid intercourse of the present day—passage by steam and communication by magnetism, the subjugation and use of mechanical forces in all their might and in all their delicacy, by superior and commanding minds—has inspired and elevates the observant and co-operative masses of men to a degree hardly surpassed by the training of our public schools. While, therefore, the business of life as represented by our railroads and steamships and telegraphs and mills, and improved modes of agriculture, demand intelligent labor, it joins hands with the schools and does its share of the work of education. Before the incessant activity and extended relations created by all the accelerated business methods of modern days: by transportation which opens the markets of the East to the living products of the pastures of Illinois, and carries the laborer in a day from the locality where he is is not wanted to the locality where he is wanted, by machinery which creates faster than a destructive and extravagant people can consume, and casts the printed page broadcast over the land, driving the distaff and spinning wheel into seclusion, and avoiding the tedious toil of the hand-press, we cannot, if we would, become stationary in our habits and deliberate under our necessities. To pause now is simply to be trampled upon by the multitude. We must travel by steam, we must send our wool to the mill, our milk to the factory, we must know how much gold there is in Colorado, and silver in Arizona, and coal in Pennsylvania, and copper at Lake Superior; we must have read the last message of the president, the last speech in congress; we must know something about Mr. Gladstone and Gambetta, and John Bright, something about Chili and Peru, and whether the statesmanship of New Jersey or the statesmanship of Maine is to apply to the adjustment of their difficulties; we must use a steel pen and a mowing machine, and a horse hoe and a tedder, and a horse-rake; we must exchange photographs with our friends, and recognize in every way the marvelous diligence of man in his use of light and heat and air and earth and sea for his own comfort and convenience, or make up our minds to live in the world as not being in it. We must believe in the relations of our industries, the combination of industrial forces which makes modern society what it is, if we would perform our part well, and comprehend the genius of the age in which we live.

"And now, gentlemen, I submit these suggestions with regard to the relations you hold to the business of the country, and the active energies by which you are surrounded, with a deep consciousness of my own inexperience, but with a deep sense, also, of my obligations to the work in which I am engaged. My agricultural labor and observation have been confined to that section of our country in which a hard soil and severe climate have compelled the farmer to toil with the utmost diligence and to calculate with the utmost economy, that section in which small farms and diversified agriculture have always rewarded the industrious and sagacious husbandman. But I see no reason why my education in that field should be inappropriate elsewhere, inasmuch as good cultivation, a wise choice of land, a proper selection of seed, the skillful preparation and use of fertilizers, the breeding and feeding of well chosen animals, are profitable anywhere in this country, and the economy of a farmer's home and a farming community is the same throughout the entire land. I am anxious, as the United States Commissioner of Agriculture, to encourage every step toward systematic and profitable farming, and to support the judicious views of all local authorities who are working in the same field with myself. The business of the department which I represent is largely auxiliary, and can best be conducted by stretching forth a helping hand to all who are endeavoring to increase the products of our soil and to improve the condition of the vast animal kingdom upon which the farmer so largely depends for his subsistence. By the introduction of new seeds submitted to the test of the farmer's experience, and by recording the results of such test for the instruction of the public; by encouraging agricultural education in all its branches; by rousing a vigorous attention to the work of making our farms attractive; by scientific investigations into the quality of soils, the constituents of the various articles of food used by man and the domestic animals; by an intelligent study of the American forests and tree culture, much may be done to aid the farmer in his work, and much to lead him away from enterprises which are impracticable and visionary. In order to accomplish this I have submitted the important problems which have come before me to accomplished commissioners or to careful investigation on which we can rely. The vine culture and grain growing of the Pacific coast, the supplying of the arid regions with artesian wells, the mode of conducting forestry schools and experiment stations in Europe, have all been submitted to competent agents for examination and report. The question of cattle disease on board the steamers transporting cattle to Europe has been presented to the privy council in England, and much has been done to satisfy the English public that the American animals shipped are free from contagious diseases. I have taken especial care that the seed distributed by the department shall be of the best quality.

"The agricultural department should undoubtedly be the nucleus around which can be gathered those associate industries which depend on agriculture for their existence and, in turn, make agriculture profitable and in many sections, possible. Statistical returns of our manufactures, with an illustrative display of their products, would do much to establish a uniform system of land and water carriage among us. Accurate surveys and returns of our mineral lands with the industrial processes employed in working them, are of vast importance. A well organized and consolidated inquiry into the extent of contagious diseases among animals, the best methods of prevention and extirpation, cannot be too thoroughly and promptly organized and without considering for a moment the political status of such a department, I think you will agree with me that the time has come for its organization. An active, industrious, intelligent body of American citizens and producers are entitled to it, as a branch of government whose value cannot be overestimated.

"The encouragement of all industrial endeavor in this country has a deep significance, growing out of the relations existing between the producing classes here and the system of state and society in which they live. In England, the model farm selected for the inspection of Elihu Burritt. consisted he tells us, of 3,000 acres on which "men of skill and experience who in America would conduct farms of their own and could not be hired at any price may be had in abundance for farmers at from twelve to fourteen shillings or from three to four dollars a week, they boarding themselves." The wages of manufacturing labor in the great towns of England and France are equally insignificant; an adult earning in England under the best circumstances about eight dollars per week, and in France seventy to eighty cents per day of twelve hours. A careful investigation into the system of small land-holding in France has satisfied Mr. Howard, an agent sent there to investigate it by the Land and Farmers' Club, that such a system is a failure and contrary to the social and civil system there. And Dr. Playfair, speaking of England, says: 'Our country has shown little inventiveness and made little progress in the peaceful arts since 1862.' Not so, however, here. America is the paradise of the small land-owner. Labor is so well renumerated that its earnings constitute a large share of the deposits in our savings banks. The inventive arts are devoted to the business of easy and profitable production. A woman with her needle earns a mere pittance in a long and weary day in which necessary confinement and toil destroy that very physical energy upon which she depends for a subsistence. With a sewing machine she easily earns an ample income. A machinist with the tools of half a century ago could reap but a small reward, and no farmer could afford to pay the current prices for agricultural labor in harvest time were he thrown back upon the scythe, the sickle and the flail. But a man armed with ingenious machinery becomes hundred handed and can earn accordingly. He becomes a part of society in which he can exercise his taste as well as supply his wants. It is not the cost of a mere subsistence that we are to calculate in this country, but the amount of comfort and taste which every man can reach, good food, good clothing, a good dwelling adorned simply or elaborately according to his means.

"Fortune does not smile on all men here, it is true, but when she does smile, the cheer which follows in this country is unsurpassed. Aided by the arts of life which surround him the American takes his place in society, performs his civil duties, pays his taxes, aids his churches, builds his school houses, educates his children, builds and beautifies his home and endeavors to perform his part in life with no recognized barrier between him and the object of his ambition which industry and perseverance cannot overcome. For him, for his opportunity, for his inheritance as a citizen and laborer in this republic, I would encourage every industry, stimulate every mental and moral faculty, and build up and support every institution which can aid him in his work."

The afternoon of the first day was devoted to a lecture on

"THE DISEASES OF DOMESTIC ANIMALS"

By R. W. White, V. S., of Owatonna.

"MR. CHAIRMAN AND GENTLEMEN:—Before commencing to speak on my subject, I would like to speak a few words in behalf of my profession, though I feel that my address will be of little interest to you after hearing such an eloquent speaker as Mr. Loring.

"I am very sorry to say there are so few professional veterinary surgeons in this State. There are not more than six or seven in the State, and there is field enough for that many hundred, and I am very sorry to say that a professional veterinary surgeon is looked upon and classed as a low degraded being, and a bar-room loafer; but gentlemen, that is a great mistake. I will admit that the majority of the men that practice as veterinary surgeons are generally too lazy to work, and are usually addicted to drink, and therefore professional men are looked on as the same kind of individuals. A professional man should be a sober, steady man, and you will find them so as a rule, as it requires more thought and study to diagnose a case in our practice, than in the human being, as our patients cannot speak, therefore it is done principally by symptoms, the same as a child is treated. I do not see why Minnesota cannot educate her own veterinary surgeons as well as to have them come in here from the eastern colleges. We have the facilities as well as the talent and the right kind of young men to educate.

"The first disease of which I will speak, is a disease called "Puerperal apoplexy," or more commonly called milk fever. It is a disease which will be of great interest to dairymen as well as stock breeders, as dairymen generally pick the best milkers they can find, and generally feed well and keep their cows in good order.

This disease always attacks a good milker and a cow in plethoric condition, and most generally after the third or fourth calf, and generally the second or third day after calving, sometimes sooner. The first symptom you will notice will be a shifting of the hind feet or paddling. The breathing will be accelerated, and occasionally she will moan or bellow. The eyes will become amaurotic, and the horns will be hot, the nose dry, and rumination (or quidding) ceased, in a short time the animal will fall down, sometimes she will rise on her feet again, which is a good sign. I have noticed that the majority of those that rise after falling have recovered, but you must always look upon this as a very fatal disease, and should have the attention of a qualified man as soon as possible after you notice those symptoms. After the animal goes down she will soon begin to show brain disease in an aggravated state, by swinging the head around and resting it on the side, and if the head is drawn from that position it will fall back to the side. Very often they will throw the head violently about and strike the ground or manger and break the horns off. This should be guarded against by packing around the animal well with straw; keep the cow on her sternum or natural position when lying. The pulse is rapid and full, but in some cases weak, and the treatment should be governed according to the pulse; the stomach will very often become filled with gas. The hind quarters are insensible if pricked with a pin, the eyes do not contract or shut on touching the eyeball with the finger, and the pupils will not contract with the stimulus of light. There is obstinate constipation from the first and in very bad cases there will be paralysis of the sphincters, (that is the anus and vulva), and urine and feces passed involuntarily. When this stage is present there is very little hopes of recovery.

"The next disease which I will speak on is a disease called Tubercle. It is found mostly in fine blooded cattle and sheep. It is a disease which is dreaded by the stock breeder, as it is generally one of the finest blooded animals of the herd that shows the disease. The disease is one which is hereditary, and you should never buy a horse or cow without first inquiring into the history of the family to which they belong, and if you find any trace of tubercle you should not breed such an animal on your farm. The symptoms of an animal suffering from tubercle is a dry, hacking cough. The animal may keep in ordinary flesh for a while, but as the disease progresses it will become thin and emaciated, and eventually succumb to the disease. The best thing to be done when the disease is noticed is to fit the animal for the butcher as soon as possible, as treatment is of no avail. Tubercle makes its appearance in different forms; it most generally attacks the lungs, but in some cases it will make its appearance in the glands of the body. In those cases it is termed, scrofulous glands; in the glands of the mesentery of the bowels, it is called *tabes mesenterica*. In those cases the animal would be better destroyed.

"The next disease will be impaction of the rumen (or large stomach). It must be understood that the cow has four stomachs, and the rumen is the first one and the largest. This is a very common disease where cattle are in pastures where there is long dry grass, or an over-feed of dry indigestible food. The first symptoms noticed will be the cessation of rumination, and the nose dry. The animal will very often lie down and emit a low grunt.

The pulse will be nearly natural, if anything a little weaker than common. The appetite will be gone, and on pressure with the fingers at points where the rumen is attached to the walls of the abdomen, the impacted food can be felt, and if pressed in will pit and the impression will remain. As a rule it is not a difficult disease to treat, but some cases where there is great distension with food and paralysis of the coats of the stomach, medicines have no effect. In those cases it will require the attention of an experienced and qualified veterinary surgeon, as they will require the operation of rumenotomy, which is performed by cutting through the wall of the abdomen at the place of attachment to the stomach, large enough to admit the hand, and remove the contents and sew up the wound.

"The next disease which I will bring to your notice will be a disease called fardel bound, (or the impaction of the third stomach). It is quite a common disease, and its causes are the same as impaction of the rumen. This is a disease which is very frequently mistaken for pleura pneumonia, as the symptoms are something similar, but a qualified man can readily distinguish the difference. The first symptoms, you will notice the animal will cease ruminating, will lie down, and will lie well up on the sternum (or breast), and will emit a grunt quite loud, very much like pleura pneumonia. The bowels will usually be constipated, and hard, small, black or dark pieces will pass the bowels; but sometimes it will commence with diarrhœa, and be succeeded by constipation. There is generally after the disease advances, great thirst and inflammation of the stomach, which is shown by the animal grinding the teeth. The pulse is fuller, the grunt that came on by spells is now continuous. I have seen some cases where diarrhœa set in at the last stages, of a most offensive nature, and the animal die exhausted. They are generally very difficult cases to treat, on account of the peculiar structure of the stomach, which is composed of numerous layers or folds of mucous membrane.

"I will speak for a short time on pleura pneumonia in the ox. As I said before, a great many times unprofessional men make a mistake in their diagnosis between fardel bound and this disease, but there is no necessity for such, for there is a great difference between the two diseases. You have altogether different respiration, more labored and shorter, the grunt is louder and shorter, and indicates more pain. The nose is dry, and the horns cold, and on pressure to the affected side the animal will evince pain. It is very seldom it attacks both sides at once. The bowels are constipated as shown by the dark colored feces passed by the bowels. This is a disease which requires urgent treatment, for if left too long before getting proper treatment, there will be an effusion of serum in the thoracic cavity from the inflamed pleura, and if such should be the case you may as well give up the case, as a general rule medical aid cannot save them at that stage. The causes of this disease are very numerous. They may contract the disease by being exposed to a cold storm, not being accustomed to being out in the cold, or they may take it by being removed from a warm barn to a cold (or vice versa) and sometimes it is brought on by the injudicious administration of medicines, by allowing a portion to go down the wrong passage. Cases from the latter cause are generally fatal.

"I will now speak on a few diseases of the horse, as my time will not allow me to dwell any longer on diseases of the ox, and in fact does not allow me to give you the minute details nor the pathology of the diseases I have spoken on.

"The first disease I will speak on is a disease called azoturea. This is a disease which is very common in this country, and especially in horses that are in plethoric condition. You will work your horse regularly for a while, and feed high on grain; then you will let him stand in the barn for four days, or more, feed grain regular while standing, and then at the expiration of four days, or more, you take your horse out and lead or drive him, you think you never saw the animal feel better. After you have gone a short distance you notice the animal gets very stiff and does not drive up as usual, sweats profusely, and wherever the harness touches it forms a lather. You stop him and find him trembling in the flank and breathing very hard, and suffering great pain, and will very often go down on the road and have to be hauled home on a stone-boat or sleigh, and generally lie from two days to four before they can rise on their feet, and then very weak. If you watch till they urinate you will notice the urine will be as dark colored as coffee, and in very bad cases so thick it will be passed with difficulty, and if preserved in a vessel will soon undergo decomposition on account of it containing so much solid material. It is a good sign to see the urine pass in great quantities and dark, as it is a sign that the system is throwing the opaque material off by the kidneys, as those are the glands mostly used in elimination in this disease. The cause of this dark urine is the excessive combustion in the system, from there being an over abundance of rich material in the system, from being fed on rich food and doing no work and getting no exercise; and as soon as they are driven and exercised there is increased circulation, and consequently a very rapid waste, the lymphatics are over-taxed, and therefore we have congestion of the large muscles of the hips and loins, and some cases the shoulders. On pressure those parts will be found very hard. This is the cause of the loss of power of the legs, and the excessive pain. The treatment of this disease is very simple, as nature as a general rule is performing her work well, and it is a great mistake to go to dosing with medicines which are calculated to act on the kidneys, as you are very apt to over tax the kidneys, and cause derangement.

I will now speak a short time on a disease called embolism of the heart. Gentlemen, this is a disease which I feel at a loss to describe, as it is a disease which is not spoken of in any veterinary work in the world, to my knowledge, therefore I will give you my theory of it. It is a disease which is very uncommon. I think it is more common in this country on account of feeding so much corn. It is not known in the old countries, because they do not feed corn. I have always found those horses affected with it to have been fed heavily with corn, and worked hard in the hot sun without sufficient water, and the animal sweats freely and does not get the fluids in the system replenished, and the blood becomes very thick (or more properly fibrinous) as corn is a great heat producer and no doubt produces fibrin as well. When the animal is first attacked he will begin to hang back and not walk up with his mate, and sweat more easily than common. As the accumulation becomes larger in the heart, the horse becomes weaker, begins to reel and stagger, and shows brain symptoms from not sufficient blood going to the brain; the legs and ears get cold, and very often swellings appear on the breast and belly. In the course of from six to ten days after the first appearance of the disease the horse will drop dead in the stall without a struggle, and on holding post mortem on the animal the embolism will be found in the left cavity of the heart, attached to and surrounding the cords of the heart, and extending into the arteries for two or three feet. As soon as the embolism gets large enough to obliterate the cavity, there is sudden death. The pulse was my only guide in any case I saw, and a very sure guide, too, as it is a very different pulse from any other disease of the heart.

The next disease I will mention is one which every farmer and horseman thinks they thoroughly understand. It is a disease called Strangles or Distemper. It is principally confined to young colts, but may occur in older animals. It generally makes its appearance in the spring of the year, about the time the colts are shedding their coats and getting their permanent teeth. There are two forms of Strangles, the regular and irregular. The first named is a very simple form to handle, but the latter form requires very great care in the treatment as they generally appear in a very aggravated form, for it is not every man that is his own horse doctor. In place of forming abscesses under the throat and jaws, these abscesses are liable to form in any part of the body, and very commonly form in some part of the internal viscera. I have seen them form in the mesentery of the bowels, and in the lungs, and will be more liable to form in a gland. A very common place is on the breast or shoulder. They will form very hard and large tumors and are very troublesome to get rid of as the walls of the abscess will be found to be from one to two inches thick and a small amount of matter contained in the center. Strangles is not generally a fatal disease; itself, it is the sequel to it that is the most dangerous from the fluid portions of the matter or pus being absorbed into the circulation, and causing pyæmia or blood poison, and consequently some more fatal disease sets in. One which is a very common sequel to Strangles is Purpura Hæmoragica, which if not properly treated will prove fatal. You will think your colt is doing splendidly and in a short time you will notice the legs begin to swell. The animal appears dull and the breathing becomes more rapid from the pain in the limbs, usually all four legs will swell, and the lips and nostrils will swell, and in the course of twenty-four hours there will be an escape of serum through the skin of the legs, of a reddish color. One peculiarity of the disease is the swellings of the legs terminates abruptly at the upper part of the swelling nearest the body, as if a string were tied around the leg. The blood in this disease loses its fibrin and coagulating properties, therefore the fluid portions escape from the capillary vessels into the subcutaneous tissue and escapes through the skin. On opening the nostril the lining membrane will present a spotted appearance, there will be red patches on the membrane which will sometimes slough out and leave an unhealthy sore. The eyes will have a dull appearance, and will very often swell shut, something like pink-eye. Another very common sequel is laryngitis, that is inflammation of the throat, which is in a great many cases a serious complication, as there is not sufficient pure air taken into the lungs, and that is an essential thing in the treatment of Strangles. A great many valuable colts and horses choke or strangle to death, with this disease, on account of the swelling of the throat and thickening of the membrane lining the larynx and completely obliterating the air passages. The only treatment that can be adopted in this case is to perform tracheotomy, which is done by cutting into the windpipe or trachea and inserting a tube, this is the tube (showing the instrument) and immediately the tube is inserted the animal breathes as freely as if nothing was wrong with the throat, but he will breathe entirely through the tube and not a breath of air goes through the mouth or nostrils. I have kept this tube in a horse's neck five days and the animal recovered. There is no necessity for an animal to choke or strangle to death if you can apply this method of treatment in time.

There is just one more disease which I would like to bring to your notice. It is a disease called constipation of the bowels. Now this is a disease in which I think there are more mistakes made and more different kinds of treatment adopted, than any one disease in veterinary science. You will find nine times out of ten, when a horse begins to paw and switch his tail, look around at his side and lie down, roll and get up, stand still awhile, go down and roll again, the majority of men will say he is suffering with his water.

Gentlemen this is something I would like to put you right on, if you are laboring under such a mistake. The horse complies too nearly with natural laws to have his urinary organs get deranged. When you see a horse show the symptoms I have mentioned, you can rest assured he is suffering from an affection of the bowels. An animal suffering with constipation of the bowels will lie quietly after the first half hour after the attack, and will lie for hours sometimes if not disturbed; he will occasionally emit a grunt while breathing. Some cases will terminate unfavorably: There will be paralysis of a portion of the bowel, and very hard impaction of the cæcum or blind gut, and never can be removed. Others will die from inflamation of the bowels. I think the reason why people are misled in the diagnosis of this disease, is because the animal will very often stretch his hind legs back, and sometimes so far as to nearly touch the ground with the abdomen, but it is not because he wants to urinate, it is because the pain in the bowels makes him do so and as a rule as soon as you get the pain relieved the animal will urinate freely. I have convinced some very obstinate men of the fact of it not being the urinary organs by drawing the urine away from the bladder with the catheter while they were suffering, but no relief then, so that was conclusive evidence that it was not there. Now, gentlemen, I have taken up your time and precious time at that, long enough, so I will allow you the privilege of asking any questions you wish, and I will try and answer them as satisfactory to you as I can. You will need to be as lively as possible as it is getting late. One gentleman asked the doctor what he could do to prevent the disease called milk fever in the cow. He was told to keep the animal on spare diet, not feed rich food, neither sloppy feed, or much water for a week before calving, to a cow you have any doubts about. Some good authors recommend giving a mild physic a few days before calving. I think you can dispense with the latter by adopting the former; I have seen good results follow that method. Considerable discussion and various opinions were brought forward, but nearly all to the same effect. Another gentleman asked the question what he could do with a heifer he could not get pregnant. He was told to have the heifer examined carefully and see if there was anything wrong with the os uteri, or opening into the womb, and if that was closed which is very common, it should be opened, and requires a skillful hand. There will sometimes be a hard cartilaginous ring around the os which will make it very troublesome to open, and as soon as you get opening made into the uterus the bull should be allowed to serve her. They should not be operated on only when in heat. I have operated on three and was successful in two cases. There is sometimes disease of the ovaries which cannot be remedied, and the animal cannot become pregnant.

The Doctor then explained how to operate on a cow with impervious teats as that question was asked him, and he showed the instruments to do it with, and he also showed an instrument for removing hernia or breach and capped elbow, those hard, fibrous bunches on horse's elbows caused very often from lying on the calks of the shoe. It is an instrument he got up himself and has proven a success in every case it has been tried.

Professor Porter now made a few remarks and the day's proceedings ended.

The course was continued on Wednesday, March 1st, by

HON. WILLIS P. HAZARD,

of Chester, Pa., Vice President of the American Dairymen's Association. Mr. Hazard spoke both morning and afternoon on the subject of "The Cow," breeds, management, selection, &c. The following is a synopsis of both lectures:

"To properly answer the question, what are the best breeds of cows for butter and milk dairies, the three leading points of yield, profit and food must be considered, and it will be necessary, in this connection, to investigate somewhat the various breeds of cattle.

The best authorities upon the subject all admit that the best strains of milking qualities are derived from the Holstein or Dutch breed, cattle imported into England by the Danes. These cattle have been cultivated by English breeders principally for their beef-producing qualities, on account of the late high price of meat, but the Dutch dairy farmers have improvod the breed in the line of milch cows until they have attained to a degree of excellence unsurpassed by any other breed. The Holsteins are now recognized as a very superior kind of shorthorn cattle, remarkably good for milk, both in quantity and quality, and, as working oxen, proving large, strong, high-spirited, having great endurance of heat, and great aptitude to fatten. They are extremely valuable to cross with other breeds. They are peculiarly adapted to this section of the country and pre-eminently to the wants of the general farmer, though if proper attention is not paid to them they are apt to degenerate into large, coarse stock.

"The Shorthorns, or, as they are sometimes called, the Durhams, from the county where they were first widely bred, were first imported in 1815, and have, since that time, become more widely and popularly known than any other breed. They have become acclimated and flourish on common food as well as native cattle. They fat fast, make very powerful and docile oxen, and are naturally excellent in the dairy, giving large quantities of milk, butter, and rich cheese. The Durham and Jersey mixed is an excellent breed, also. The Durham thrives well wherever there is plenty of winter fodder, but is not equal to the Devon or Kerry for stony ground or scant herbage. Next to the Shorthorns, the Devons have been most imported, and claim our attention next. There are two kinds, the North and South Devons, varying in size and color, but similar in most qualities, and both very hardy and vigorous, and weighing from 1,000 to 1,200 pounds. The Devons give only a moderate quantity of milk, but that of very rich quality.

As oxen they have no superiors, weighing from 1,500 to 2,000 pounds, docile and amiable, and affording the choicest meat for the butcher. The introduction of Devonshire clouted cream into this country is strongly recommended as a source of revenue to the farmer. Among the milk breeds prominent in the British Isles, a leading place is occupied by the Ayrshire, so called from the county of Ayr, in Scotland. They have always been prolific milkers, with rich but gracious quality, especially in proportion to their size, which is small. The usual yield is 600 gallons a year, or 175 pounds of butter, or 430 pounds of cheese. The oxen work kindly and the beef is excellent, though not so tallowy as in some other breeds. As a breed to cross with larger stock, they are highly recommended; the colors should be red and white, splashed and blotched."

"The Jerseys, or as they were formerly called the Alderneys, are noted for the extraordinary richness of their milk and their beautiful form. Though natives of a very mild climate, they stand the rigors of our winters nearly if not quite as well as our own natives, some claiming the American Jersey to be superior to that of the Channel islands. The milk of the Jersey cow is particularly rich, of a deep yellow color, and yielding a rich golden butter of firm grain and fine flavor. It is superior in butyracious qualities to that of any other breed, the amount of cream being from 9 to 25 per cent. The Jersey is not a large consumer, and makes excellent beef when dry, but will probably never become very popular as a dairy cow for the farmer, the first cost being too great for profit compared with other stock. No better stock can be raised than by the use of a Jersey bull with prolific milkers of other stock, and every farmer ought to keep at least one Jersey to every ten cows of other breeds. Every farmer ought to breed for himself, rather than to trust to chance opportunities to buy probably poor stock."

VARIOUS BREEDS.

The Herefords resemble the Devons and make excellent oxen and steers but the cows are not prime milkers. The Galloways, black and hornless cattle from the Scotch Lowlands, are well fitted for cold and rough sections, but their milk is deficient in quantity, though they yield a superior quality of beef. The Kerry cow, emphatically the poor man's cow, are small and very hardy, living well on the slimmest sort of pasture, yielding an abundance of milk of good quality and fattening rapidly. The Swiss cattle are hardy and robust, somewhat like the Jerseys, but coarser, fatten well, and are excellent milkers, yielding from ten to twenty quarts daily, and about 225 pounds of cheese in a season of four months. Having thus given a short sketch of the most prominent breeds, let us enquire what the farmer needs."

(1.) "He wants a good sized animal which will bring most of its cost for beef when failing as a milker, (2.) A cow that will come into profit early. (3.) A cow that will give plenty of milk and rich, whether for milk, butter, or cheese. (4.) A cow that will consume the least food for the product gained. (5.) He wants oxen that will be tractable, active, and docile, and that will feed up quickly for the butcher. If there is any one breed that will combine all these qualities, it is the Durham, or the Durham and Jersey mixed. And farmers are in duty bound to raise their own stock more, by selecting the best cow they have or can get, whether native or imported, and breeding them with the best bull of pure stock, of known milking qualities, that they can get. Having decided what breed to raise, the first important step is to know how to choose a good cow."

'See that the cow is as much wedge-shaped as may be: that her escutcheon is good and free from depreciating marks; that the milk veins are large and prominent; that the udder is full in the forward part, and the teats of good size, well separated, and not too projecting toward the sides. The head should be small and slender; the horns thin and open; the eye full, but not too prominent; the muzzle not too broad; the neck long, flat, and narrow; the hips wide, rugged, and high; the thigh long and lean, with prominent veins; the legs slender, with flat bones and small, flat feet. A long and thin tail is a great point in breeding. The udder should be free from hair, flexible, and soft, with no tendency to flesh; the teats well separated, and neither fat nor fleshy, nor too long, and with no tendency to strutting. No cow should be allowed to give milk beyond eight months before calving, the system requiring at least one month's rest. A young animal is indispensable for the dairy either to breed from or to be profitable to the keeper. To determine the milking qualities of a cow, see that the skin is free and thin, the tail fine and long and well tufted, and the veins over the perineum large, varicose, knotted, and more or less oblique. This is a sure test. Guenon's method, based upon the forms of the scutcheons is also an admirable test of milking qualities. The extent of the scutcheon denotes the milking capacity, its form and outline the class, the fineness of the hair and color of the epidermis the quantity and quality of the milk.

"Having made a good selection of an animal, the question arises how to maintain her in good condition for profit, and we will consider the management of the cow.

"She should have abundance of food, that she may consume it as soon as possible; in short she must not have to work too hard for her living. The pasture should be often changed and when not in pasture, sufficient food should be provided. Roots early in the season require an addition of solid food, such as clover chaff or meal. The best roots are carrots, yellow turnips and mangel wurtzel. Corn fodder, potatoes and sugar beets are excellent. In winter, oil cake and ground oats, steamed or boiled, are good food. No other animal than a horse, should ever be allowed in the pasture with a cow, and the cows should not be allowed to sleep out after August. They should also be regularly curried, and a piece of rock salt should always be where they can find it. The milking cow should be kept free from rapid and considerable changes of temperature, and should not be turned out too early, as cold and chills will occasion her early falling off in her milk. Many breeders think it best to bring the cows in every night in the year. Perfect cleanliness and good ventilation are of the utmost importance in the cow house, and much care should be given to bedding the cattle. Milch cows should be milked at regular hours twice a day and should be fed with hay or meal while being milked, as the feeding engrosses their attention and helps sustain the stomach. The hands should be perfectly dry and clean, and the utmost gentleness should be used. Remember that all nature is alike, subject to the same natural laws, none of which can be safely violated.

The system of selecting dairy cows of Monsieur Guenon interferes with none of the other methods of judging of the merits of a cow, but it offers a nearly infallible adjunct to all the others, and should be learned by every dairyman. It enables him to tell almost exactly the quantity and quality of milk that any cow will give, how long she will probably remain dry and many other important points. Guenon was a poor cowherd near Bordeaux, and first discovered the facts which underlie his system while driving his cows to and from their pastures. He noticed that the hair on the posterior of the cow grows in a different direction (*i. e.* upward) from the hair on the other parts of her body (which grows downward), producing figures which he called "escutcheons," and whose form and extent indicates the essential points in regard to milking qualities. The tufts of hair upon the escutcheon and the color of the skin and its unctuous exudations, are also important elements. Also, there must be considered the breed, size, feed, period of gestation, age, climate and many other things which will be explained.

"Beware of a cow with white, dry skin, and coarse hair on the escutcheon; they may give a large quantity of milk for a time, but will soon fail and the milk would be deficient in butyraceous elements. The system of Guenon contains ten classes of escutcheons and six orders in each class. The classes are arranged according to the shape of the escutcheon; the orders according to extent. Out of the hundred various divisions, however, but thirty-two are really necessary to be learned. As a rule, never buy a cow in any class below the third order. The size of different cows and their breed, even when the escutcheons are similar, will materially make a difference in the quantity of the yield, though not in the quality. The lower or thigh portions of the escutcheon is much the same in all classes; the vertical portion varies in all the classes and thus demands the most attention. The thigh escutcheon indicates the quantity of milk that the cow will give; the vertical escutcheon, the time she will milk; and the "feel" of the hair and skin indicates the quality of the milk, the Jersey being the standard on this point. Breadth is the criterion of thigh escutcheon; length and breadth of the vertical. The escutcheon also indicates the generative capacity of bulls, according to rules similar to those above. Guenon named his ten classes from the forms of the vertical escutcheon, as follows, the first being the best: Flanders, Left Flanders, Selvage, Curved Line, Bicorn, Double Selvage, Demijohn, Square Cut, Limousine, and Horizontal. The bastard marks on the escutcheons indicate short milking time; in the Flanders, the mark is a small oval in the middle of the vertical escutcheon; in the other classes it is two ellipses on the prominences of the ischium. The udder ovals are unfailing signs of a good cow. Slices out of the thigh escutcheon are bad signs, as are all marks encroaching thereupon. Coarse hair on the udder is also an imperfection. The hair on the escutcheon of a first-class cow is generally darker and more fur like than that bordering it.

"The probable explanation of the cause of the escutcheon is found in the supply of blood to the milk veins. The mammary artery sends blood to the udder, and also sends out branches which supply the skin where the escutcheon grows, and these branches ramify in the direction of the hair; hence it would seem that there is a ratio of cause and effect in this case. It is well known that the escutcheon increases in size until after the second or third milking. This Guenon system has been subjected to the most critical tests by scientific men, and has stood them all successfully. Every farmer and dairyman should understand it."

Thursday, March 2d, was also devoted to Mr. Hazard, who occupied the morning session in giving a lecture of which the following is an abstract on

BUTTER AND BUTTER MAKING.

"Butter is defined by Webster as an 'oily substance procured from cream or milk by churning.' If Webster is right, then we are wrong in denouncing an 'oily' substance as being butter, though, perhaps, many persons have thought they were making and selling butter when they produce an oily or greasy substance and put it upon the market as such, believing it must be butter because Webster says so. Butter, properly speaking, is as far removed from an oily, fatty or tallowy substance as possible. The popular desire of purchasers of butter is to obtain a firm fine grained article, of rich golden color, sweet, nutty, aromatic smell and unctuous taste, and which invites both smell and taste. The object of this essay is to give plain, practical rules for making such butter as will sell itself. Most of them are derived from the practical experience of the farmers in Chester county, Pa., who supply Philadelphia with a "gilt edged" butter at $1.25 a pound. The best butter pays the best, and it is as easy to make as an inferior article. It elevates the moral tone of the family. The character of the family can be told by the looks of the butter. There are many different ways of making fine butter, yet there are certain cardinal principles which rule in all, and which will produce the same relative results, if carried out with due attention.

The great secrets of making good butter are these: The utmost cleanliness of the cow house; in the treatment of the udder; in the spring house or vault; and in the use and care of the utensils used in the dairy; proper feeding of the cows; careful milking; care of milk and cream in the spring house or vault; churning at proper temperature and evenly working and salting the butter; marketing and packing for market. Bear always in mind that from the time the milk leaves the cow till the butter graces the table, milk, cream and butter must be near the temperature of sixty degrees. Good butter should contain at least 82 per cent. of fat or oil, composed of solid or margarine fat, and liquid or oleine. Winter butter contains sixty-five parts in one hundred of solid fat, summer butter only forty parts, which explains why cream should be churned at different temperatures at different seasons. The proper temperature for churning is fifty-nine degrees for sweet cream, sixty-two degrees for sour, and sixty-four degrees for milk.

Fresh butter is a yellow, slightly acid substance, which liquifies at seventy-nine degrees, and contains seven fatty and volatile acids, together with an oil formed from oleine and butyrine. Under the influence of oxygen this latter becomes butyric acid, which is the cause of the unpleasant taste and smell of rancid butter. Rancidity can be corrected by washing first in lime water and then in fresh. The quantity of milk required to yield a pound of butter varies from eight to fourteen quarts. The average is nine to to eleven quarts of milk for two of cream or one pound of butter. As a general rule small cows yield the more butter, large ones the more cheese; a warm and dry climate favors the butter, as does also the morning's milk, while a cool, moist region and the evening's milk best suit cheese production. Cows eight to ten years old will give milk producing 40 to 60 per cent. more cream than the milk of their offspring two years old, though fed alike.

FEEDING FOR MILK AND BUTTER.

With a good lot of cows (for butter cows we recommend Jerseys and Guernseys) the farmer must pay attention to the feeding and watering if he would have good milk and good butter. In summer time the cows should have plenty of good, rich pasture, so that they can fill themselves quickly and lie down and chew the cud and make milk. The pasture should be clear of weeds, as they impart an unpleasant taste to the milk. Shade and pure water should be in plentiful supply, especially the latter, as milk may be poisoned in the udder by the cow drinking muddy or stagnant water. Toward the close of summer and in the fall, feed green corn fodder, sorghum, Hungarian grass, or an early crop of sugar beets. Bran and a little corn meal is good summer fodder. Winter fodder should be the best of hay, as clover and timothy; they should have about ten quarts of bran and corn meal mixed, and carrots, parsnips, mangolds and such roots, to keep their systems open. Corn fodder, shorts, oil cake, pumpkins, etc., are all good, though the former alone will not make good butter. It will pay well to steam or cook the food and to feed hay tea. Turnips and cabbages should never be fed for good butter makers, as they flavor the milk, and the butter is unfit for keeping. It is wrong to color butter artificially, the color should be derived from the food; early cured hay and corn meal will do this. The cow stables should be kept warm, but not with confined air. and should be always sweet; the daily use of plaster or diluted sulphuric acid is recommended.

MILK AND CREAM.

Milking should be done regularly, quietly, thoroughly, yet quickly, twice a day, and as near six in the morning and evening as possible. Great care should be taken to get the last drop; the strippings yield from 10 to 20 per cent. more cream than the rest of the milk, and, besides, leaving the strippings will cause the cow to dry up sooner. Cows should never be driven to the milking shed hurriedly, as it agitates and heats the milk and the cow. The cow must be looked after as soon as she comes in, and if the calf does not take all the milk from her, she must be milked by hand enough to prevent the bag caking. One mess from a feverish cow will spoil a whole churning. If milk froths and foams, the butter made from it should be sold at once. In caring for the milk, a spring house is preferable to a cellar, as the temperature is more apt to be equable and the air is not so confined nor so apt to be contaminated by decaying vegetables, etc., usually stored in a cellar. Wooden pails should never be used for milking or setting milk. The best pans are the tin, painted on the outside and with bails fitted to them. They should be kept perfectly clean and sweet by scalding, rinsing in pure cold water, and exposing the inside to the sun. They should be thoroughly cooled before using.

SETTING THE MILK AND SKIMMING.

Some dairymen prefer deep pans for setting the milk, others prefer shallow; we prefer the latter, say three or four inches deep, as there is more surface to receive the cream and the whole of it will rise. In large dairies, setting the milk in deep cans may be more economical as saving much labor in washing. The milk should not be set more than thirty-six hours, and it is better if skimmed in twenty-four hours, what is lost in quantity being gained in quality. It should be skimmed before it is at all acid or thickened. Above all, do not scald either the milk or cream, though in cool weather the cream should be set in a warm place, as it must be slightly acid before it will make butter. An ounce of fine salt to a three-gallon jar of cream makes it churn quicker. Cream should not stand longer than a week before churning. The milk should be closely skimmed and each time the cream is added to the cream jar the contents should be thoroughly stirred with a wooden spatula and the inside of the jar, above the cream, carefully wiped off.

SPRING HOUSES AND ICE HOUSES.

No farmer can hope to make first-class butter profitably without plenty of pure, soft water on his place. If there is a spring on the farm, he should build a spring house and utilize the running water. Those who do not own a spring should build an ice house, the larger and deeper the better, along the shady side of a hill. Then build a dairy house attached below the bottom of the latter. In the center of the floor of the ice house construct a ditch so that it will receive the drainage of the ice, and sloping to the dairy room, where it should be wide and deep enough to hold the necessary pans. Thus there will always be a supply of cool water to keep the milk at a uniform degree. The spring house should be of stone or brick, with a double roof for ventilation, and with the running spring water conducted in stone or cement troughs large enough to hold two rows of pans and deep enough to let the water be always a little higher than the milk in the pans. The walls should be plastered in all dairy houses and kept scrupulously clean; everything should be removed that will impart impure odors or taint the air. The dairyman should remove his shoes when coming from the barnyard, and, if kerosene lamps are used, they should be fitted with appropriate ventilators. The temperature should never be allowed to range more than from fifty-five to sixty-five degrees, and the dairy should front the north and be well shaded. In a prairie country, a good dairy house can be made near a well, by building a semi-subterranean structure and then keeping a supply of water by means of a telegraph pump.

CHURNING AND WORKING THE BUTTER.

Churning in summer is best done in the early morning, while it is cool; in winter, in a warm place. An even, moderately slow and steady stroke is better than rapid time; fifty to sixty strokes a minute will bring the butter in half an hour. The churn should not be soaked over night, but should be washed just before using. If the butter will not gather, pour in ice cold water. The churn should be as straight up and down as possible, and the dash should stir all the milk at every stroke. Churn fully as often as once a week and as much oftener as may be, and, upon churning, add all the cream upon the milk in the dairy. As soon as the butter has become hard, draw off the buttermilk, and remove the butter into a wooden tray with a wooden paddle, and in working it remember these rules: The butter is in good condition to work when it cuts clean and smooth, without crumbling, by a cold, wet ladle; it should not be mashed, but worked with a careful, gentle, yet telling pressure; it should not be finally worked until it is dry; it should not be allowed to stand long before working, as it is apt to become streaked and rancid. These rules apply to both hand and mechanical working. The butter should never come in contact with the hand, and should be somewhat sparingly salted and with only the best article. One pound of salt to twenty pounds of butter is a fair average. Butter should never be washed, as all the buttermilk that is necessary can be worked out without destroying the grain of the butter; it makes it insipid and liable to rancidity.

If, however, you do wash your butter, use only soft water. The utmost moisture that should be found in thoroughly worked butter is a very slight dew, and it should be of such a firm consistency as to slice down hardly dimming the surface of a knife blade.

COMPARATIVE PROFITS OF BUTTER MAKING.

Of the four ways of realizing from milk—butter, cheese, condensed milk and milk for family use—butter, if properly made, is the most profitable. Where the milk is sold and the butter is sold, both being near good markets and of good quality, butter at fifty cents pays a better profit, equal to at least ten per cent., than any of the others. It must however be marketed with taste to get the most income. It is practicable for producers of butter in the United States to increase its average price ten cents a pound, and this enhancement would put in their purses $100,000,000. This is too large a sum to pay for ignorance, carlessness and lack of cleanliness.

The afternoon session was occupied by the speaker of the morning, Hon. W. P. Hazard, upon "The Channel Islands; the People and their Cattle," a very interesting paper, which we cannot print in full, but of which the following synopsis of great interest to the farmer is given:

THE CHANNEL ISLANDS.

From their situation in the British channel, these islands are called the Channel Islands, though more popularly known by the individual names of the larger three of the group, viz.: Jersey, Guernsey and Alderney. These have attracted the attention of

England and America, in recent years, through the merits and beauties of their two famous breeds of cattle, the Jersey and Guernsey breeds.

A stroll through the town of St. Peter's Port will reveal the handsome new market house and hall. Here we have a look at the rural population and products. In the middle of one part of the house are benches, upon which sit a number of women chatting with each other, each holding upon her lap her market basket with its contents, covered with linen or other covering. How gallant and kind it seems to have provided for the female purchasers a place for rest, and to have a social chat. But directly we are undeceived, for when we pass near several of the baskets are uncovered, and the contents are attractively displayed to tempt a purchase. How nicely the golden circles of butter look; how white and fresh the eggs! Ah, then, here the women sell the butter of their own make, and well they understand the art; that's why the circles are nearly double the size of our pound lumps, though they are only half as thick. Well stamped, and of the deep rich color which only Guernsey cows can yield, taste after taste will assure you there is none better. As the herds are not large in Guernsey, each maker can easily bring in her basket the few pounds she has to market.

The meats of the Guernsey cattle we examined with care, and tasted with relish the Guernsey beef, as we felt anxious to test its quality, to know whether the animal of that breed made good beef. We found it to be juicy, tender and delicious, with a fine peculiar aromatic flavor. The color of the fat is of a deep orange color, much darker than that of the Shorthorn or Devon, and to many would be somewhat objectionable, but only from prejudice. It is even of a deeper yellow than the fat of the Jersey. The meat at the same time is of a deeper red than that of other animals. The animals are driven under an inspector's eye to the public yard, marked, and only allowed to come out to be killed at once by the butcher. The islanders guard their two noted breeds very carefully from any chance of being crossed, and do not allow the cattle even of one island to be imported into the other. This is one of the values of those animals imported into this country, the assurance of the purity of the breed.

THE JERSEY CATTLE.

The cattle of these islands are now famous for their beauty and their merit, and are of late being widely scattered over our whole country. In the native island, where the grass is strong and rich, much like our green grass or blue grass, and clover and lucerne are much used, the cows are led out in summer in the morning, and tethered with a rope or chain to an iron peg driven into the ground by a wooden mallet, and are allowed a space of about thirty feet in diameter. They are changed again at noon. In summer they are milked three times a day—such cows as are flush in milk—from April to August, and during the other months twice a day. When milked three times the amount of butter is not greater in proportion. As this work is always done by women, who lead them to pasture and to water, the animals become very docile. It is thought an extraordinarily good cow that gives twenty quarts—the quantity being more usually from ten to fourteen quarts—the medium quantity is possibly ten quarts. In summer it requires nine quarts for one pound of butter, and in winter rather less, if they are fed upon parsnips. There are no large herds in Jersey or Guernsey. Ten or twelve is an unusual number; five or six are more frequent, and most every farmer tries to have one or two heifers to sell. Altogether there are nearly 12,000 head in Jersey, and between 5,000 and 6,000 in Guernsey. The sales from the two islands are less than 3,000 each year, the great bulk of them going to England. Canada is beginning to take a few, some go to France, and about 300 come to the United States. America is taking the best, and paying the highest prices, and with the care taken in breeding in this country, we shall soon, and we might almost say now, have finer animals than the islands can show.

GUERNSEY CATTLE.

What we have said of Jersey may with equal justice be applied to Guernsey. About the same attention is paid to breeding their stock, but the farmers are more contracted in their views, and generally, if they can use a bull for a shilling they will not pay five shillings for a much better one. The result of this is seen in the escutcheons, and the hair of their animals. The one is not as well developed as might be, and the other is not as fine. But the Guernsey cow we think is rising rapidly in the estimation of our farmers. She is an animal of larger size, of greater yield, of greater docility, and yields the richest quality of milk. Her butter is self-colored, even in winter, is firm and of beautiful texture, and her golden milk will color that of from six to ten common cows.

Friday, March 3d closed the exercises of the first week. Papers by Dr. G. A. Dallimere of Faribuilt on "Diseases' of sheep" and J. H. Sanders of the Breeders Gazette on "In Breeding and out Crossing" of which we can give but very brief abstracts.

THE DISEASES OF SHEEP.

We shall consider this morning two very fatal diseases of sheep, known as diarrhœa, or inflammation of the smaller intestine, and dysentery, or inflammation of the larger intestine, accompanied by infusion of blood. These diseases generally arise from exposing the young animals to cold and improper food, and are very dangerous. In the case of acute dysentery, bleeding is absolutely necessary. Physic should always be given in these diseases. In treating adult sheep for dysentery, give first two doses of epsom salts; then give an astringent. Ginger and gentian with perhaps a grain of strychnine or half a grain of arsenic added, is an excellent tonic and should be administered as soon as the astringent begins to show its effects.

In June and July the gadfly troubles the sheep a great deal, attacking its head and getting into its nostrils and finally into the brain; this is known as botts. Smearing the nose with tar is a good remedy, as the fly will not come near the tar, and so cannot get into the nostrils. Scab is a most dangerous disease, affecting the wool, the flesh and the general constitution. It is a subcutaneous parasite. To cure it, shear the sheep as close as possible, wash thoroughly with soap and water and afterward with limewater and tobacco water, or apply a preparation of one part of mercurial ointment and seven of lard. Another serious sheep malady is turnsick, or hydatid of the head, casued by the presence of a grub in the brain. The remedy is by trephining and removing the grub by the use of the trochar. The speaker concluded by a short dissertation on pink eye, which, he said, he had successfully treated by administering freely enemas, febrifuge and bran mash, using a camphorated liniment and warm fomentation.

"IN BREEDING AND OUT CROSSING."

Cross bred or grade animals are more profitable than full blooded for almost all purposes. The winners of most of the prizes at our fairs are grade beasts. The only important exception is the thoroughbred horses. There is a constant tendency in nature that animal life shall adapt itself to the peculiar conditions by which it is surrounded. Changing from a condition of scanty sustenance to one of plenty would work great improvement, the contrary course would result in the extinction of the breed. Practical breeders and scientists are agreed that breeding in-and-in is a most pernicious practice; finess of texture and beauty of shape being offset by loss of robustness and power. Cross breeding among members of the same order on the other hand, generally results in a decided gain of power in the offspring. Cross-breeding between members of different orders, however, is generally at the expense of fecundity.

In breeding of thoroughbred stock we have the principle of selection which often results in constitutional weakness and tendency to debility. The in-and-in breeding has been carried so far that there is a sexual homogeneity which promotes healthy offspring. Hence, in securing a progenitor of a herd, never buy a prize animal at a cattle show. A scrofulous taint in offspring will result from such parentage. Breeding in-and-in is not necessarily dangerous until there results a uniformity of type. But in cattle breeding a thoroughbred sire is very much to be desired, and if the previous breeding has been according to nature's rules, and without over feeding or pampering, or in-and-in breeding, there should be and will be no lack of vitality or hardiness. Thoroughbred males always reproduce their own good qualities more strongly than do grade males, hence only a thoroughbred parent should ever be used with a grade parent to produce good results. The experience of the leading sheep men in this connection is that the most profit is obtained from going to England for thoroughbred males to cross with our native sheep, and thus ensuring the continuance of the best qualities of both breeds.

In the afternoon Mr. Hazard read his final lecture, on "Sheep Husbandry", of which the following is a synopsis:

Sheep raising is one of the most important branches of the farmer's vocation, as is shown by the amount of wool raised in the United States, which in 1881 reached 250,000,000 pounds, and which was still short of the manufacturing demand by nearly 50,000,000 pounds. When we consider the many acres in every state well adapted for sheep raising that are not so stocked, or are stocked with cattle many of which are unprofitable, we conclude that farmers are not aware of the profit in sheep. To breed sheep for profit whether for the sale of lambs, for the wool, for the carcass, or for the whole combined with the enriching of the farm, requires a correct start, and this lies mainly in the proper selection of the breed, having one's market or purpose in view. Nearness to large cities would indicate raising sheep for the mutton, and hence a prolific and fine-meated breed is best.

If early lambs are wanted cross Cotswold-Merinos with a pure bred Southdown ram; if late lambs are wanted, use a Cotswold ram. Farmers living far from market should choose a breed for wool, and the Merinos are preferable. In growing for combing wool, which is done on rich grazing land, the Lincolns, Cotswolds and Leicesters will prove the most profitable. These breeds, however, require care and good feeding to produce well with bright lustre and long staple. For quality of mutton, the Southdown has the tenderest, juiciest and best flavored meat. Mutton costs but one-third the price of pork to raise. The soil should be dry with natural drainage, for wet feet are a prolific source of diseases among sheep. The herbage should be short and rich, but not too luxuriant. Shelter from the sun, either natural or artificial, should be provided in the pasture, and plenty of clear running water should be always at hand. Feeding racks and troughs in the fold are also necessary. Be careful to feed uniformly.

BREEDING.

Good ewes with a large, deep body, broad hips and bright wool —indication of health—and quiet disposition, make good breeders. The ram that will prove the most valuable should be selected for his good shape, clear eye, good character of wool, his having the prominent points of his breed, and not too great a tendency to fat. Good health and shape, a well-knit frame, smooth, an indication of vigor, are better than a fat, heavy ram. A certain amount of in-and-in breeding is of great advantage in securing desired points and qualities; this is best done by constant, selection for a few years, of those sheep in the flock which present the points aimed at, and breeding like to like until the qualities are fixed, but never beyond this point.

WASHING AND SHEARING.

Washing sheep frees the fleece from accumulated dirt and makes the wool bright and soft; soft water should be used only; hard water deprives the wool of its grease, and leaves it hard and rough.

The water should be clear also, as muddy water leaves the wool of an unattractive color. After washing the sheep should be turned at once into a green, turfed pasture. In handling the sheep, never grasp it by the wool. June is the best month to wash in. After the animal is thoroughly dried, and the fleece has become soft and oily, select a warm sunny day, that the sheep does not feel the change too much, and with well sharpened shears remove the fleece. The art is in keeping the hand elevated, so as to keep the points of the shears near the sheep's body, thus avoiding cutting the fibre twice and and also avoid cutting the skin. Great care should be exercised in preparing the fleece for market, as neatly done up and well packed fleeces always command the highest prices.

The exercises of the second week of the lecture course were opened on Tuesday, March 7, 1882, by Mr. J. S. Harris of La'Crescent, on the subject of "Farmers' Orchards." Mr. Harris said:

Ladies and Gentlemen:

After devoting more than one half of my lifetime to the solution of the question of growing the hardy fruits and especially the apple in Minnesota and the Northwest, I am compelled to say that the successful culture of the apple in our state has a greater number and more difficult obstacles to surmount than in any other state in the Union, or than in any other department of labor that requires the cultivation of the soil in this state. Within the last twenty years much time, labor, and capital has been expended in trying experiments, and testing varieties, and while failures many times outnumber successes, some progress has been made, and the time is at hand when fruit culture will become one of the most important industries within this state, not alone as a source of wealth, but of comfort, refinement and happiness, and when all the obstacles are removed or overcome, will reward the husbandman as well or better than the investment of the same amount of capital in any other enterprise. I long since arrived at the conclusion, and have frequently expressed the opinion, that it is possible for nearly every county in the state to produce the more hardy northern fruits in such quantity as to give an ample supply to meet every demand for home consumption.

I purpose at this time to speak only of the apple, and give it as exhaustive a treatment as the time at my disposal and my ability will permit.

(1.) Our state being comparatively new, and our soil and climate somewhat different from that of other and older states, it necessarily follows that we lack experience, and that becomes an obstacle which only time and careful experiment can overcome. The old varieties of apples, our favorites in the Eastern and Middle States have nearly all proved to be unsuited to the more unfavorable localities—and there is but a small list of them that are profitable to plant in the most favored places—therefore we are compelled to plant largely of the Siberian and Astrachan species which have been advanced from the northern parts of Europe and Asia, and these, unfortunately, have some serious defects, and cover but half of the season in which apples are the staple fruit. It has been said that the apple is the king of fruits. In its various species and variety it gives a wonderful range of qualities; size, form, color, texture, flavor and season of fruit, which meets all purposes, and satisfies every taste. No other fruit is like it, and the demand for it exceeds that of every other, and is on the increase yearly. American apples have a world-wide fame, either in their fresh or dried state, and the home demand is increasing beyond the supply even in the oldest apple producing states, and to-day better prices are received for them than when not one-tenth of the quantity was produced. Again, it is a well known fact that the use of fruit as a part of our everyday diet increases as we advance in wealth and civilization. If the farmer out on the frontier provides for his family one peck of apples this year, they will want a bushel next, and the next a barrel. They will never require less but will always call for more, and this call must be answered just as far as means will permit, or the growing appetite will become vitiated, and strive to satisfy itself with things that are hurtful or demoralizing. A farm without an apple orchard of the best varieties is a very poor place to raise children who will honor their parents and give them support and comfort in their declining years, and love the old farm more than any other spot on earth.

There are a few farmers who do not view things in this light, but happily they are few. The end will justify the means, and just so far as we succeed do we promote our own happiness and prosperity and enrich our state. Some apples have been grown in Minnesota, enough to demonstrate the fact that they will grow here, and that if we have varieties adapted and give them the right locations and cultivation our apples would rank with the best for beauty of appearance and superb quality.

SITE FOR AN ORCHARD.

I would select a high location, one that would give natural drainage and a free circulation of air. On such a location the vicissitudes of temperature are less than on low lands. The days are cooler and the nights warmer. Trees always injure most in low valleys and a few feet in elevation may decide whether a man's orchard shall be a success or a failure. My experience is that elevation is of much more importance than aspect, and more especially with varieties that bloom early or continue their growth late into the fall.

A northern aspect is generally considered to be the best, but I should not object to a southern, if I could have it on a good elevation that commanded a free circulation of air, and on some accounts should prefer it to any other if I could give it suitable protection and mulching, of which I will speak in another place. On such an aspect the fruit colors up better and comes to more perfect maturity, and the trees come earlier into bearing.

In low valleys we are more subject to late spring frosts and early ones in the fall. The first will frequently destroy a crop of fruit after the blossoms have appeared, and the latter sometimes causes serious damage to the trees in causing bark burst by arresting the return or downward flow of sap before the trees have fully ripened and discontinued their season's growth. If it should become necessary to plant an orchard in a valley, I should, if possible, select a northern or northeastern aspect and as high and dry elevation as possible.

SOIL.

Soil is another factor that should be considered when planting an orchard, We find in this state a great variety of soils, such as sandy, clayey, loamy, alluvial, etc. A sandy soil is one in which sand in some degree of fineness and sharpness is a principal factor, and is usually quite defective in fertility. If very sandy it parts almost instantaneously with moisture, and trees planted in it are apt to suffer from drouth. It lacks also many of the essential elements that go to make up the structure of the wood and they cannot be permanently supplied by manuring, as all the soluble parts of manure are quickly washed out of it, and hence it would require constant application to keep up the growth. If no other soil can be secured a sandy soil may be improved so as to make it more retentive by the addition of clay, ashes, muck, etc. A clay soil is directly the opposite of sand and is one where clay predominates. Its defects are that it retains moisture too long, is too adhesive, and in dry weather becomes hard like unburned bricks, and in the dry state is impervious to dews and light rains, and when wet requires a long time to become dry enough to cultivate. No fruit tree will do well in such a soil unless it is the plum and shellbark hickory. Such a soil may be ameliorated and fitted for orchardry by underdraining, deep trenching, and the application of sand, ashes, muck, manure, etc. A loamy soil is the one we hear the most about and may be interpreted as being composed of a great variety of mixtures. The true loam is about an equal mixture of sand, clay, and vegetable soil or humus, and is practically adapted for about all classes of vegetation, and is the very best for the orchard—and especially is this the case where lime is held among its ingredients. Alluvial soils are composed of vegetable substances, the sediments of rivers and material washed down from neighboring hills. The valleys of our rivers and streams and the coulees among the Mississippi bluffs are largely alluvial, and it is the richest of all soils and well adapted for garden purposes and many of the farm crops. Fruit trees make a rank vigorous growth in such a soil but they are not so hardy or fruitful, and the fruit is not so high flavored, and does not keep as well as that grown upon soil containing more sand and clay, and less of vegetable mould.

PREPARATION OF SOIL.

It would be useless to plant fruit trees upon our Minnesota prairies with the expectation of growing fruit upon them until they are first broken up and subdued by taking off a few crops; and I doubt if even in our naturally deep soils that would be a sufficient preparation. Few of our farmers plow to a greater depth than six inches, and the roots of trees cannot be confined to that depth from the surface, and when they commence to strike deeper, will find an uncongenial soil that will have a tendency to give them a severe check. Some people recommend digging a large hole eighteen or twenty inches deep and filling it with good soil and compost. This practice might not do serious harm on naturally deep, porous soils, but on clay and clay subsoils it would be disastrous, and much like raising plants in pots without drainage holes in the bottom to permit the escape of surplus water. The safest practice is to have the soil prepared to a uniform depth throughout the whole orchard, and this is the best and most cheaply done with a plow and strong team, plowing into narrow lands by back-furrowing running the plow ten inches or a foot deep, leaving open dead furrows midway between the rows. If the soil is poor the best fertilizer to use is well rotted barnyard manure applied at least six months before the trees are to be planted.

PLANTING.

Experience has demonstrated that for Minnesota, if not for all the Northwest, spring is the best and safest season for transplanting. The reason is obvious. A tree or plant is a thing of life as much as an animal, and in order to be able to endure the rigors of winter, must have through its roots a vital hold upon the soil, which it cannot have if planted in the fall with mutilated roots and the rootlets left where the tree was taken from. There is doubtless a circulation of sap during the mild days of winter, and no matter how cold the weather, there is a constant evaporation going on from every bud and twig, and the roots having no hold upon the soil, and no mouths to drink up and take in supplies, this evaporation must greatly enfeeble the tree if it does not kill it outright.

But while I advocate spring planting, I as rigidly hold to the theory that the trees should be secured, dug, transplanted, root and top pruned, if necessary, and heeled in or buried with the roots entirely out of the reach of frost, the previous fall. Trees should not be dug in the fall until the season's growth is entirely completed and the wood perfectly ripened up. Trees for shipping are sometimes dug too early, and the leaves stripped off before they have performed all of their functions. Such will start feebly and make a sickly growth. Digging trees in spring is a practice that ought to be condemned, and I am glad to know that some of our nurserymen are obviating the necessity of it by providing ample cellar room for winter storage. The sap starts as soon as the frost is out of the ground, and bending the tree in the process of digging is apt to loosen the bark and produce sun-scald on the south and west sides of the trees, and a slight bruise will make a dead spot in the bark.

Also trees dug in the spring are more liable to make a later full growth the first year and become black-hearted after the next winter. If the ground is well prepared it is not necessary to open holes larger than to secure the roots without cramping. After the hole is dug and the tree placed just where wanted, and little, if any, deeper than it grew in the nursery, it should be held in place with one hand while with the other fine soil is worked about the roots, and care should be taken that there is no place where soil and roots do not come in contact. To expedite planting, first lay off the ground and set a stake at every point where a tree is to stand. Next provide yourself with a machine which was described in some agricultural paper several years since, viz: A board five feet long and six inches wide, bore an inch auger hole in the center near each end and cut a notch in one side midway between the ends, and prepare two stakes that will slip easily through the holes. It is used by laying the board down with the notch fitting to the stake and inserting the two stakes in the auger holes. Lift off the board, removing center stake, digging the hole and laying the board back over the end stakes, and setting the tree to have the trunk fit into the notch. After the hole is filled press the earth firmly about the roots with the feet, and finish off by drawing some fine loose soil about the tree leaving the surface loose for two or three feet from the trunk.

MULCHING.

As a general rule if a tree is properly taken up at the nursery, rightly handled afterward, and skilfully planted in suitably prepared soil, it will live. But it is always safe to apply a mulch which will keep the ground moist and of an even temperature. Almost any waste material will answer for the purpose, but the best is leaves from the forest, half decayed hay or straw, or swamp moss. Wood chips and crude swamp muck should never be used, or fermenting manure. The mulching should reach beyond the extent of the roots.

CULTIVATION.

It is as essential to keep a young orchard as clear from grass and weeds as it is any farm crop. In our virgin soil any crop that will not shade or interfere with the trees, and does not require cultivating after the first of July, may be grown until the trees come to bearing, after which time they had better occupy the whole ground. Beans, peas, potatoes and other garden vegetables will pay the best. I have seen good results follow the growing of the smaller varieties of corn, leaving the stalks to stand over winter to help break the force of the winds and retain the snows.

Where crops are taken off just enough manure should be applied to keep the ground in heart, but not enough to make it fat. In plowing and cultivating, great care should be taken not to break or mangle the roots.

PRUNING.

With some varieties pruning seems to be a necessity, but it should be done with great care. Every one ought to know how and when to prune, but it is a knowledge that can only be acquired by careful study of the structure and habits of trees and the peculiarities of climate, and I do not feel competent to lay down any arbitrary rules for it. The idea has been inculcated and advocated by some of the fruit growers of this state that pruning is an unnecessary operation, and it has been acted upon in practice so much that many of our orchards are unsightly objects. I do not believe in the currant bush form for apple trees, but would start the head of the tree at from two and a half to four and a half feet from the ground and keep the tops open and in a symmetrical shape, not allowing branches to cross each other. Sharp crotching or forks should not be allowed, as they are almost sure to split down and ruin the tree when it comes into bearing. Wherever such are inclined to form in trunk or top, one trunk or branch should be removed while yet small and pains should be taken to have all side branches start out from the leader as near as possible at right angles. This system of starting the top also tends to earlier fruiting. By commencing when the tree is small, about all that will be required is pinching off with thumb and finger and removing small twigs which can be done with safety at any time except between the middle of March and the middle of June. If it should become necessary to remove larger branches it should be done about the first of July or in November, and the wound made ought to be covered with grafting cement or paint.

GRAFTING AND BUDDING.

On account of mistakes of our judgment of varieties, blunders of nurserymen, the swindling of tree peddlers, and the Siberian hybrid mania that sometimes induces us to make worthless purchases, it is highly important to be proficient in the art of "budding and grafting," that the worthless may be turned into something valuable. This art is easily mastered and it is hardly necessary for me to spend time to describe the process in detail. The operation of budding is usually performed on young trees or branches from one to three years old, and can only be done in the growing season. It consists in separating a bud with a portion of the bark attached, from a shoot of the current season's growth of one tree and inserting it beneath the bark of another, binding it in place with a string until it has grown fast. When this bud commences to grow, all of that part of the stock above it is cut away, the bud grows on, and eventually the top or branch of the tree of the same variety as that from which it was taken. The ordinary season for budding in this climate is from the middle of July to the middle of August, but may sometimes be performed as late as the first of September. The buds must be perfectly developed in the axils of the leaves of the young shoots intended to bud from, and the bark must rise freely from the stocks to be budded, and this only happens when the stocks are in a thrifty growing state. The only instrument necessary for the operation is a common two bladed pocket knife, the large blade to be used for pruning away any branches that are in the way of inserting the bud and the smaller for preparing the buds and making the incisions in the stocks. Strings of buss matting, woolen yarn, or cotton twine will answer for tying. Grafting is the insertion of a scion of one variety or species upon the stem or branch of another. The best scions are the shoots of the previous year's growth. Stocks may be of any age from a yearling seedling to a fully matured tree, but of whatever age they should be sound and healthy. The best methods and most commonly practiced are whip grafting and cleft grafting. In whip grafting the stock is better not to be more than two years old, but may answer as large as one-half or three-fourths of an inch in diameter. Upon the stock the grafter makes a smooth even sloping cut an inch or so long, and in the center of this cut he makes a sloping cut downwards. The scion, which should contain two or three buds, is cut on the lower end with a sloping cut downwards and similar in all respects to the one made on the stock, and a slit or tongue is made on it upwards corresponding with that on the stock, and they are then neatly fitted together the tongue of one within the other and the inner barks of both placed in perfect contact at least on one side. It is then firmly wrapped with a narrow strip of waxed cloth to cover the parts united. Cleft grafting is practiced on trees or branches too large for whip grafting, say an inch or more in diameter. In this method the scion is cut in the shape of a wedge. The part cut for insertion in the stock should be about an inch long, one edge a trifle thinner than the other and with a bend at the shoulder where it is to rest on the stock. The stock is sawed off at the point for grafting, and a sloping cut is made on one side of the stock about one inch and a half long and coming about to the center of the top. The stock is split a little one side of the pith, by laying the edge of a chisel or knife on the horizontal surface, and striking it lightly with a mallet or hammer. The split is kept open by the insertion of a wedge while the scion is inserted with the bud out, and the thinnest side in. Grafts of this kind heal much more rapidly, and are stronger, than when the cut is made horizontally across. In grafting by this method it is more convenient to apply the cement with the hands, being careful that it fits closely and covers every part of the wound.

AGE AND SIZE FOR PLANTING.

In regard to age and size of trees for planting in the orchard, probably the best is short unbranched trees of two years growth from the root graft, and from three to four feet high; such trees will need no pruning when planted, and, if skillfully managed, very little afterward. They can be purchased for much less at the nursery, cost much less for packing and transportation, and are more apt to have all the roots that belong to them. In no case, would I recomend purchasing trees more than three years old, but if the planter grows his own trees the age and size is not so material, provided, proper care is used in digging and setting them. Trees should never be allowed to have their roots exposed while they are out of the ground, even a few minutes exposure to the sun and wind may prove fatal to them. It is best not to plant too early in the spring, or before the soil is somewhat dry and warm, which is about corn planting time.

DISTANCE APART FOR ORCHARD TREES AND PROTECTION.

On this point our fruit growers disagree, different individuals advocating all the way from twelve to thirty feet. The advocates of the closer distance claim quicker returns from the land, and that the trees afford a protection for each other. I do not believe that a first class and fruitful orchard can be grown with such close planting. It is true that they advocate the removal of a portion of the trees when they get large enough to crowd each other, but it would take about as much nerve to cause the removal of a sound, valuable apple tree, as it would to undergo the operation of amputating an arm that was not seriously diseased, or have a sound tooth drawn. The great danger is that the surplus trees will not be removed until they have injured those which are to remain. In my opinion, the best distance for the prairies would be not less than 25 feet and for timbered lands 30 feet. If planted at these distances other crops may be grown between and pay all cost of cultivation. I should much prefer the greater distance apart, and some variety of timber tree for a protection, which would cost less, and be of more value for fuel, when the time arrived for its removal; but, doubtless, the best trees to plant between, would be evergreens, which can be purchased cheaply, while small, and can at first be set so close as to throw their shade upon the trunks of the trees without the danger of their roots drying out the soil, or exhausting it of the constituents essential for the apple tree. They can always be kept within bounds by severe pruning, or they will be valuable for taking up and planting in some other place.

Upon our prairies; protection from prevailing winds will be absolutely necessary, and for windbreaks any quick growing timber will answer. The belt should be planted before the orchard and be at least two rods wide and four rods from the outside trees of the orchard.

Within this belt and sharing its protection might be planted another belt of spruce, arbor vitæ, hemlock or other varieties of evergreen; but in no case let the orchard come within sixty feet of the windbreak, or it will be robbed of the roots, and snows would be apt to lodge in deep drifts under their lea, nor should the belts be a complete shelter from the winds on all sides or the close atmosphere may develope blight. A belt on the north and west sides will be all sufficient. If the shelter belt is four rails wide, it will take in nine rows of trees, with the rows four feet apart, and it can be planted to serve the double purpose of protection and the growing of valuable timbers for use on the farm. With this end in view, I would plant the outside row with cottonwood; the next with ash, maple, oak, hickory or walnut, the two next with cottonwood, poplar, box elder or soft maple: next with hard wood: next with the rapid soft-growing woods; the next with hard woods, and the last with soft. The trees should be planted from two to four feet distant in the rows, and will require an occasional thinning to give the hard woods a chance to develop. The hard woods will also require thinning in the course of time, but the thinnings will be found useful for fuel and other purposes.

WHAT VARIETIES TO PLANT.

First ascertain where you live and what you are planting for. If you live outside of favored locations, or in the newly settled parts of the state, plant for large apples the Duchess of Oldenburgh, Tetofsky and Wealthy, and of the Siberians the Whitney No. 20, Early Strawberry, Powers' Large Red and Pride of Minneapolis. Is that all? Yes, for the localities mentioned, if you are planting for fruit; but if you dare to risk the blight the Transcendent may be added. In the older and more favored parts of the State plant, in addition to these, the Utter or Cooper, Fameuse, St. Lawrence, Price and Tallman-Sweet and Wallbridge,also try the Wolf River and Scott's Winter in limited quantities. This is a small list, but at present it is hardly safe to add to it anything except of the Siberian species; but no doubt new, hardy varieties will soon be added.

WHERE TO PROCURE TREES.

I do not believe that it makes any material difference where the trees are raised if they are well grown, carefully dug and properly handled afterward, and for that reason should advise procuring them as near home as possible. The worst policy a man can pursue is to order of some traveling vender of whom he knows nothing, even if he is willing to give his personal "guaranty" that his wares are true to name and perfectly "iron clad," and is willing to pledge himself to replace all that fail to grow. Neither would it be policy to purchase a lot of poorly grown, scrubby trees, with sharp forks starting near the ground simply because they are cheap. They would in the end prove to be very dear. The best way is to go direct to the nursery and select just such as you want and see them dug, or send your order to some reliable man who has gained a reputation and is disposed to sustain it at all hazards. If you know of a nurseryman who grows his own stocks and uses for the purpose Minnesota grown seeds selected and saved from the hardest and best apples, by all means encourage him with your patronage. Even if the trees should cost you double on the start they would probably prove the cheapest in the end. It would be better if every man could raise his own trees—roots are of as much importance as the tops—and with a tender and diseased root we can hardly hope to rear a hardy, healthy and fruitful top. We are all watching the efforts of Mr. Peter M. Gideon with much interest at the State experimental fruit farm, and hoping that his efforts may be speedily crowned with success. The object he has in view is the originating of hardy new seedling varieties that will prove long keepers, by crossing the hardest long keeping apples with the Wealthy and Siberian species. We are also watching and waiting for the testing of hundreds of varieties imported from Russia and Northern Europe and Asia; and this test can hardly fail of giving us some hard and good winter apples Again, hundreds of the intelligent nurserymen and fruit growers of the Northwest are awake to the importance of the subject, and are engaged in investigating the causes of failure in the past, and experimenting with new modes of propagating, crossing and testing seedlings with as much intelligence as our best stock breeders are in raising thoroughbreds, and the knowledge of vegetable physiology that is now being obtained will enable them to accomplish more in a single decade than in a lifetime a century ago. We have also a State Horticultural Society that, after a long struggle against difficulty, is a live institution, ready, willing and able to help the good work, and it ought to have 1,000 members enlisted for life in the noble work. In view of these things, I believe that before this generation shall have passed away the problem will have been solved, and we shall be able to produce apple trees that are hardy and productive, and will produce fruit of as good quality and will keep as well as that grown in what is now known as the best fruit States. The greater the numbers who engage in these experiments the better is the chance for its speedy accomplishment, and the establishment of this fruit question by the introduction of six varieties of apples as good as the Seek No Farther, Genitons and Baldwins, covering the season from October to June, would be worth $1,000,000 to the State. With such an end in view and such a prospect before us, let us not pass the time in idle waiting, but arise and do with our might that which our hands find to do.

DISCUSSION AND OTHER TOPICS.

A brief discussion followed, being shortened by the lateness of the hour, and among the points brought out was the following from Prof. Porter regarding the plum curculio. He had had a considerable experience with them and gave this method for their distruction. After trying various plans he had found that jarring was the most effective. Saw off a limb so as to leave a stub, spread underneath a sheet and hit the stub a smart rap with a mallet. The curculio, which is a small dark looking insect resembling a bit of bark, drops off onto the sheet, and may be killed, and the plum crop thereby saved. Our wild plums are as badly affected as any, and the jarring should begin as soon as the plum is in blossom.

The afternoon session was to have been devoted to a lecture on Strawberry Culture, by J. M. Smith, of Wisconsin, but in his absence the time was given up to a general discussion of that subject.

Mr. J. S. Harris spoke first about soils. He preferred a good loam for the strawberry, also a soil rather moist than dry. The latter gets loose and dries out too quick. For planting the land should be thoroughly cultivated. He had had the best success by summer fallowing the ground for a season. Spread barn yard manure and ashes on it and plow it thoroughly. Plow again in the spring; set the plant so that the crown will be on a level with the soil. Too much hoeing of the plants in the spring injures the surface roots and hurts the crop. Prof. Porter agreed with Mr. Harris that the ground ought not to be cultivated in the spring with a hoe as it disturbed the roots. It is a fibrous plant and has no tap roots. The practice among many eastern growers is to press the bare foot down firmly on the crown of the plant when planting. The distance the rows are set apart is generally three and a half feet, and in the rows one foot. Plants are set each year, and after the bed has fruited it is turned under, and either celery or turnips are planted. One of the best fertilizers is salt. Apply in the spring.

The question of mulching was fully discussed. Mr. Woolsey did not favor any being left on the plants in the spring. Mr. Freeman Smith thought a little mulch left on was better. Mr. Wyman Elliott favored leaving the straw, but poking it away from the crown of the plants.

Mr. Fawcet was considerably astonished at the difference of opinion here on mulching. He cultivated small fruits in Indiana on a limestone soil. Mulched all the way from a half inch to six inches in depth. Lightened up the mulch a little in the spring. The foliage of the plant being wide, it has difficulty in pushing through unless this is done. He thought enough mulching should be put on to cover the soil to prevent freezing and thawing.

Mr. Pearce said that the strawberry crop was one of great imporance. Last year he had grown $200 worth on a quarter of an acre. He had tried many varieties, and the Crescent seedling had scored more good points than any he had ever tried. He used a cultivator and very sharp hoe; did no weeding, but killed the weeds with the hoe. In regard to mulching he didn't know what to say. He had a plan as follows: After July or August sow clean oats. They will grow two or three feet high, and drop evenly on the plants. One or two things in strawberry culture ought to be observed. Raise the best varieties, and study how you can make the most money from your crop. He exhibited a picture of many varieties which he grew. Mr. Fawcet illustrated his harrow on the blackboard. The plants were put in with a broad dibble, by which the roots had a chance to spread. After the plants were set the harrow was used with great effectiveness in keeping down weeds and loosening the earth.

Prof. Porter said that strawberry growers out here had much yet to learn and instanced several points where there was a chance for improvement. In the first place the growers did not assort their fruit. Big and little berries were mixed together. A strawberry should never be touched from the time it is picked until it goes into the consumer's mouth. He saw hundreds of quarts here last year that were handled several times. Use quart packages for the solid varieties such as Wilson and Glendale. Use pint boxes for softer varieties, and half pint boxes for still softer ones. Always use new boxes, never let a box be used twice. In the field he used little carrying crates in which the picker placed his boxes. It had legs on it and a handle and held ten quarts, and the picker carried it through the field with him and placed his box on it instead of on the ground.

On Wednesday morning, March 9th, the Hon. J. M. Smith, of Green Bay, Wis., appeared and read the following paper on the subject of strawberry culture.

Somebody has said that doubtless the Creator could have made a better berry than the strawberry, but he never did. It is the first and best fruit of the season, and, is a universal favorite with rich and poor alike. It is generally distributed, grows on any soil, except a very wet muck, is everywhere a most luscious fruit and its cultivation should attract far more attention than it does among farmers and market gardeners. Instead of being regarded as a luxury, and an occasional supply appearing upon the table during the season of its ripening, it should be looked upon as a regular and necessary article among the provisions required in the household economy during the entire year.

To the farmer it may, by proper care and attention, be made less expensive than pork and beans, while it is far healthier and surely more palatable.

There are various methods of cultivation, and different varieties require different treatment as well as do those on different soils and in different locations. In the city, on limited garden space, it is better to set the plants near together and cultivate by hand, but on the farm where a quarter of an acre of land, more or less, is not important, it is better to set them far apart and cultivate by horse power. Flat culture and hill culture each have their advocates, but hill culture is generally considered the most expensive and more risk attaches to it. The soils on which strawberries will grow, as before stated, are almost innumerable; but I prefer a light sandy loam which I manure heavily and plow in, after which I add a coating of ashes and harrow thoroughly. Too much attention cannot be paid to the condition of the ground, when the plants are set. It must be well drained so that no water will stand upon it, or it will be impossible to obtain a good crop. If the natural drainage is not perfect artificial drainage must be resorted to. The increase in your crop will pay the cost in one season.

Having properly prepared the ground, the next question is what varieties to plant; and here let me say do not place too much confidence in the new varieties which are being constantly offered by the different growers throughout the country. True it is, that if you could believe the half that is said of them and claimed for them by their originators, they would make fortunes for us in one season, but while their propagators are not necessarily knaves, we know it to be also true, that many new varieties which have succeeded well in their own native soil, have utterly failed when transplanted to a distance, and many varieties fail in a few years in their own soil.

Since the introduction of the Wilson many hundreds of new varieties have been offered to the public, but none have superseded the Wilson for general cultivation; and for general market purposes it stands unsurpassed. For home eating Burr's New Pine is one of the best, but it is not fit for marketing. Seth Baydan's No. 3C is an excellent berry, but a shy bearer. The Crescent seedling bears well on light soils and will bring full crops where the soil is not sufficiently rich to produce a crop of Wilson's at all, but the berries of the Crescent are too soft to ship well and it is not a profitable variety to cultivate for market. The Glendale and Kentucky are also good berries, the latter bearing nearly equal to the Wilson. The Jucunda is also an excellent berry for eating but succeeds only in clay soil with the highest cultivation, and is too expensive for cultivation for market. I raised some Jucundas once, of which eighteen filled two boxes, but the berry is not financially profitable. For money making, there is no berry equal to the Wilson; for fooling away money almost any of the new varieties will do. In setting plants be sure to press the soil tightly about the roots of the plant. This is absolutely essential to success. But be sure not to press the earth over the crown. Some recommend the removal from the plant of all but two or three leaves and it is, perhaps, well to do so, unless the root is very strong. Use water liberally. It is often necessary too in order get them well rooted, and always in dry seasons, if you expect your plants to be well fruited. After planting there is nothing to be done but to keep them wet and free from weeds, and the earth about them mellow. When the runners begin to come out, say in July or August, spread them evenly around the plant and they will root themselves, giving a number of excellent bearing plants. The Wilson is one of the poorest of prolific varieties, and much care must be taken to place the runners, or you will not secure plants enough to produce a first class crop. Do not let the plants produce fruit the first season. If any blossom pinch them off and confine the entire energy of the plant to producing runners and thus new plants; but unless the plants are set very early in the spring, you will not have many blossoms to destroy. In the fall the plants must be well covered and this will end the first year's cultivation. Various materials are used by different growers for covering in the fall. I prefer marsh hay, as it is free from weeds and contains no noxious seeds. Straw that is free form foul seeds, is a good covering, but it is seldom that it can be obtained, and in using straw you are in great danger of seeding your ground with a crop of weeds. Begasse from the cane mills is used by some growers in sections where sorghum is raised, and is highly recomended. I should prefer to try it, however, on a small scale until I was well satisfied of its utility.

The mulching is not to be done until the ground is frozen and then great care is necessary in the operation. It should be spread thinly and evenly. Do not get it too thick. From an inch to an inch and a half is about right. If put on too thick it is liable to smother the plants; and do not be in too great a hurry to uncover the plants in the spring. One of the principal objects of the covering, is to prevent the alternate freezing and thawing of the ground in the spring, which is almost sure to be fatal to the plants. After the covering is removed, treat the ground to a good dressing of manure and wood ashes, and if there is danger that the berries will touch the ground, mulch around the plants. The Wilson treated in this way will bear any way, and if the bed does not bear the plants are not Wilson's. Whatever the season may be, either spring or fall, if there be weeds or grass in the bed take them out, but do not cultivate the ground too deep. I go over my bed and clean out the weeds three times before picking. If I find that my Wilsons are going to give me an immense crop I generally manure the beds a second time just before the first picking and thus preserve the size of the fruit in the latter part of the season. Ashes are the best fertilizer for this purpose. Just before the picking season water is an absolute necessity for the plants and it must be supplied in abundance. One good watering is worth half a dozen poor ones. Rain water is preferable and in applying water artificially the temperature of rain water should be maintained as near as possible.

By a careful selection of varieties you can extend the time of ripening very considerably. The Crescent is perhaps a little earlier than the Wilson, while the Kentucky is later, and these two with the Wilson for the main crop will enable you to hold the market much longer than you can with any one variety alone. At the close of the bearing season should the plants droop and show signs of decay, turn them under and put in some other crop; but should they show signs of recuperating, try them another season. The Wilson seldom bears more than two years. For a long bearer there is none better than the Charles Downing, which will bear picking for five or six years, but it is not a good market berry.

Never, by the way, set out staminate plants, for they are sterile; pistilate and perfect or hermaphrodite plants only are valuable. The staminate varieties have the largest stems and narrowest leaves, and can be told thereby. The Wilson is an hermaphrodite variety.

In picking, each picker should be provided with two boxes, into one of which all the fine perfect berries should be put; while the imperfect ones should be put in the other. The boxes should be heaped up as full as they will hold without crushing, and at once placed in the crate without handling, and as soon as possible removed from the sun, and cooled off, either in a cellar, or by means of ice.

In carrying to the depot, the crates should be placed in a spring wagon, and the horses never driven off a walk.

We make our own crates, finding it cheaper than buying them. I believe in high cultivation, and would have no plants which would not bear high culture. The average yield per acre for the country is forty to fifty bushels, fifty-nine bushels being the highest average reported for the district. This is too small. By a system of high cultivation, the Wilson or any other berry will quadruple this average. In 1875, I raised on a quarter of an acre 3,571 boxes of merchantable berries, being at the rate of 446 bushels per acre. Though I have never exceeded this amount, I often exceed 300 bushels an acre. The same result is attainable, by any one who will practice high cultivation.

In estimating the amount of ground to plant for family use, count a square rod of ground for fifty boxes, and then cultivate your ground up to that estimate; and in picking for domestic use do not gather the instant it becomes red, as you would for marketing, but allow it to hang on until it becomes a deep dark red, and then it is the largest and sweetest.

In the afternoon, Mr. Cleveland, of Chicago, Ills., read the following paper:

The Culture and Management of our Native Forests, for Development as Timber or Ornamental Wood.

Man's progress from barbarism to civilization is indicated by the degree of skill he has attained in the cultivation of those products of the earth which minister to his necessities and comfort. As long as the natural resources are sufficient to supply his primary wants of food and clothing, he will make no effort to increase them, and it is only as he is driven by the necessities of increasing demand and diminishing supply, that he exerts himself to secure relief by artificial means.

The first efforts of the savage at cultivation are of the rudest description, and just in proportion as tribes and nations advance in numbers, power, and intelligence, do they also gain in improved methods of tillage, in greater knowledge of the science of culture, and in better implements and machinery for its performance.

These are simple truths, which everyone will recognise. Their application to the subject of forest culture, lies in the obvious fact that it is not until a nation has reached mature age, and an advanced stage of civilization, that the native growth of wild forest proves insufficient for the increasing demand for timber, and the necessity of providing, by artificial culture, for an additional supply, begins to be felt.

We could hardly have a more striking illustration than is here afforded of the adaptation of the provisions of nature, first to the immediate necessities of existence, and subsequently to the development of the latent powers of the human race. The cereals and vegetables which are essential to man's daily support are of annual growth. Their culture is comparatively simple, and he soon learns that his very existence is dependent upon their renewed production with each recurring summer. The forests are equally essential to his further development, by furnishing material for the construction of houses and ships, and the countless implements by whose aid he attains to almost superhuman power. But the forest requires the lifetime of two or three generations for the full attainment of maturity. In the infancy of the race, the necessity of providing for such distant wants could not be foreseen.

Nature, therefore, as if she had been conscious that forest culture was too arduous an undertaking for primitive man, has furnished so abundant a supply, that no deficiency or necessity of economy is felt till the nation has acquired such a degree of intelligence as to be competent to the solution of the problem. And this is the point at which we now stand, and which the older nations of Europe have long since passed, seeing plainly that our natural sources are well-nigh exhausted, yet shrinking from the unfamiliar task of seeking to supply the deficency by artificial means.

Many once powerful nations have dwindled into insignificance in consequence of their neglect of this lesson which nature imperatively demands that we should learn. Their fate should be to us a warning, as the efforts of the most intelligent nations of today should be to us an example, to save us from a like fate. The necessity for action is imminent, and can not be averted. The subject of the increasing demand and rapidly diminishing supply of timber throughout the country has been so thoroughly discussed by legislative committees, both state and national, by agricultural societies and by able individual writers, that it would seem but a waste of time to bring forward the oft-repeated statistics in evidence of the danger that threatens us, and the urgent need of adopting measures of protection and relief.

Assuming, therefore, that my readers are familiar with the data which prove the necessity, I pass at once to the consideration of the means of averting the danger.

The only measure of relief thus far suggested with any definite prospect of success, is the planting of new forests. Much has been said, it is true, about the preservation of those that remain; but the words seem meaningless, in view of the fact that private property is beyond the control of the government, and congress declines even to graut means to prevent the destruction of that which still pertains to the public domain.

The planting of new forests is indeed an all-important work, which can not be too strongly urged, but we have not yet reached the period when it is likely to be successfully inaugurated, except perhaps, in occasional instances by railroad or manufacturing companies, with a view to their own future wants. Individuals will not engage to any great extent, in a work which demands the investment not only of a large amount of money, and the continuous expenditure of a great deal of labor, but also of a long period of time, which is the one form of capital of which we never have a surplus. It behooves us, therefore, to study rather more closely than we have heretofore done, the possibility of improving the condition of that which remains. The woods still standing contain a vast amount of available material, which is susceptible of development in far less time than would be required for the planting and growth of new forests, our utter neglect of which furnishes one of the most striking proofs of our ignorance of forest culture.

No one can travel through any portion of the states east of the prairie regions without being impressed by the fact that he is never out of sight of woodland. In fact the chief cause of the prevailing apathy on the subject of forest planting arises from the fact of the great abundance of groves and extended forests, which convey the impression, in spite of the assertions of staticians, that there is still enough wood growing to supply the place of that which is removed.

The Duke of Argyle, in the interesting sketch of his trip through the States, published after his return to England, says emphatically that nothing in the aspect of the country surprised and impressed him so much as the great amount of wood still remaining, and everywhere giving beauty and variety to the landscape; but he added that it was everywhere that beauty of the wild wood, which never bore any evidence of culture or effort to increase its value by artificial development.

"I saw nothing (he says) that could be called fine timber, and no woods which showed any care in thinning, with a view to the production of such timber in the future."

Such a criticism is not surprising from one who, like most country gentlemen of England, is familiar with the process of forest culture, but it certainly is surprising that, with all our boasted intelligence, we still remain practically insensible to the fact that, while almost every tract of woodland contains a large percentage of such trees as are most valuable for timber, already well advanced in growth, and susceptible, by judicious management, of being developed into proper form and size for use in far less time and at far less cost than would be required for the planting and growth of new forest; yet, if left to themselves, not one tree in a thousand will ever be fit for anything better than fencing stuff or fuel. Vast resources of wealth are lying latent and running to waste in our woodlands, and we stand stupidly unconscious of the fact that its developement requires simply the application of the intelligent culture we bestow on all other crops. In many instances, it is true, the native woods have been so long neglected, that they are past redemption, but there are, nevertheless, large areas of continuous forest, and smaller groves and woodlots in every section of the country, now yielding no revenue, which might, by proper annual thinning, pruning and culture, be developed into timber forests of very great value, while yielding an annual crop of firewood in the process.

Where shall we find, or how shall we create, the men who are competent to the work? To judge from invariable practice, our people seem not only to be ignorant of the first principles of forest culture, but unconscious even of the possibility of its application to the development of our native woods. The fact of such prevailing ignorance rests not alone upon negative evidence. We have positive proof in abundance in the attempts which we often see at the "improvement" of a piece of woodland when it is approprtiaed as the site of a residence. It is hard to conceive of anything more dismal and forlorn than the average result of the effort to impart a homelike aspect to such a place; the dwelling, with its "span new" expression, standing in the midst of a multitude of tall poles, with tufts of leaves upon their tops, looking like fowls stripped of their feathers, and the bare ground fretted everywhere with freshly upturned roots, the sole remnants of the wild shrubbery which has been ruthlessly exterminated.

In order to a comprehension of the principles of healthy forest growth, let us consider some of the processes of nature, and learn from them her requirements.

If we plant the seed of a maple, chestnut, linden, oak or ash tree by itself in the open ground in suitable soil, and suffer it to grow without molestation, simply guarding it from injury, we shall find that the first act of the young plant is to send out broad leaves, which serve among other purposes to shade completely the stem, and the ground immediately around it in which the roots are growing. As the tree grows, it preserves a symmetrical shape, the limbs spreading and the trunk increasing in size, in proportion to its height, but always preserving the condition of keeping the trunk and the ground for a considerable distance around it, in the shadow of the foliage till mature age, when the roots have penetrated to such a depth as to be safe from injury, and the trunk is protected by thick layers of cork like bark, which safely guards alike from heat and cold the inner layers and young wood in which the sap is performing its functions.

Such are the conditions to which nature adheres, if not interfered with by accident or design, and such, therefore, we may be sure, are those best adapted to healthy and vigorous growth. The fact that they are continually violated with apparant impunity, serves only to show the wonderful power of nature to supply deficiencies, and adapt herself to circumstances, but in artificial culture, we should aim as nearly as possible to imitate the course she would pursue if unimpeded.

The requirements of nature are of course the same when trees are growing together in a forest, as when they stand singly, but the conditions of growth are so changed that the end is attained by entirely defferent means.

If we enter a tract of woodland, covered with a hard wood growth of an average height of thirty or forty feet we find it composed almost exclusively of trees which have run up to a great height in proportion to the spread of their limbs. The largest and oldest of them may have had some lateral branchs which are now dead, but the younger growth will consist only of tall, slender stems, without a branch or leaf except near the top. It will be difficult, perhaps impossible, to find a single tree possessing sufficient symmetry of form to be worth transplanting for ornamental use. A little reflection will serve to convince us that this form of growth, so different from that of the single tree in the open ground, is the natural result of the action of the same rules under changed conditions.

When a young wood first springs up on open ground, each tree begins to grow as if it were alone, sending out lateral branches and preserving its proportion. But whenever these laterals meet and mingle with each other, they shut out the sunlight from all below, and thence forward all lateral growth must cease, and each individual is struggling upward to keep even with its neighbors and secure its share of the sunbeams which are essential to its existence, and which can only be had at the top. It thus becomes forced out of all just proportions in the effort to keep even with its fellows. The conditions of keeping the trunk and roots in the shade, however, are even more rigidly adhered to than in the case of the single tree, growing by itself, for the whole area of the wood is shaded, and, moreover, the trees on the edges of the wood, if not interfered with by men or cattle, will be clothed on the outer side with limbs and foliage, clear to the ground, so as to check the free passage of the winds whose drying influence upon the soil is even more active than that of the sun.

If we examine more closely we shall find that nature adapts herself to these changed conditions, and avails herself of whatever advantages they afford.

The single tree when growing by itself sends its roots deep into the ground in search of the moisture which cannot be had near the surface, and thus, when it reaches mature age, it draws its supplies from sources beyond the reach of temporary changes, and, moreover, secures so firm a hold upon the ground that it suffers no injury from the storms that assail it, but fearlessly stretches forth its arms as if to challenge the gale.

In the woods, on the contrary, the surface soil never becomes parched or heated, but maintains an even degree of temperature and moisture in consequence not only of the exclusion of the sun and winds, but of the deep mulching of leaves which annually cover the ground and keep it moist, while by their decomposition, they form a rich mould comprising all the ingredients of vegetation.

If we dig only a few inches into this mould we find it everywhere permeated by fibrous rootlets emanating from larger roots, which under these circumstances have kept near the surface where they draw nourishment from the rich material there provided. If the single tree in the open ground had tried to live by such means, it would speedily have perished for want of nourishment, or would have been uprooted by the winds as forest trees are liable to be when left alone in a clearing.

In the woods the necessity no longer exists of sending the roots to a great depth either in search of nourishment or for support against storms, and nature always adapts herself to circumstances and attains her ends by the simplest and most economical means.

If we now consider the facts I have stated, which anyone can easily verify for himself, we shall find that all the essential principles of tree culture are comprised within their limits, and by their rational observance we may secure healthy and vigorous trees, and develop at will either such forms as will fit them for timber or for ornamental use.

The five trees I have cited — maple, chestnut, linden, oak and ash — are among the most common and yet the most valuable of our forest trees, and may be taken as representatives and proper illustrations of the facts I am stating. Either of these trees, if growing by itself in proper soil and undisturbed by other than natural influences, will attain, at maturity, a height of seventy or eighty feet, with a spread of limb equal in diameter to its height, and a trunk of such massive proportions as leaves no room for apprehension of inability to uphold the wilderness of foliage it has to support. But these same trees, if grown in a wood, will send up a slender stem, straight as an arrow, fifty, sixty or seventy feet without a limb or a leaf, till it reaches the average height of its fellows, and sends out its tufts of foliage to secure the benefit of every sunbeam it can catch.

We see therefore, that if we wish to form a beautiful and symmetrical tree, or a grove of such, composed of individual specimens of majestic and graceful proportions, we must allow it free access to sun and air, with full power of expansion on every side. While young, however, the growth will be more vigorous and healthy, and we can develop the desired forms more easily and successfully by leaving a much greater number of trees than are eventually to remain, and removing from year to year all which are near enough to the final occupants to check or impede their full development.

If, on the other hand, we wish to develop the trunk or bole for use as timber we must plant, or suffer the trees to grow more thickly together, and thus extend its trunk longitudinally by forcing it to ascend in search of the sunlight on which its very existence is dependent. The indigenous growth, however, is always a great deal too thick for successful development. The trees are so crowded that many of them perish in the struggle, and those which survive are drawn up into such spindling proportions that not one in a hundred ever attains the dignity of timber, whereas by proper and reasonable thinning, and judicious culture and pruning of the trees selected for final retention, every acre of woodland might be made to yield an annual crop of fire-wood, and all the while be growing timber which eventually in many instances might be worth more than the land itself; or by a different process of management may be converted into a grove of majestic and graceful, ornamental trees.

The proper performance of this work constitutes the most important part of forest culture and for want of the knowledge of how it should be done, or from ignorance of the possibility of its application to our native forest, a vast area (in the aggregate) of woodland is running to waste; yielding no revenue and promising nothing better in the future than fire-wood, of which a very large proportion is yet susceptible of redemption and conversion into timber of great value at far less cost of time and labor than would be required for the planting and rearing of new forests, while the very process of development would be yielding an annual income instead of demanding large outlays.

Travel where we may we are never out of sight of forests, and every woodlot is a mine of wealth waiting only the application of intelligent labor for its development. In almost every tract of woodland may be found more or less of the trees I have named and in many places also hickory, walnut, butternut, elm, cherry, beech and other valuable timber trees, mingled with a great variety of those which are worthless, or fit only for fuel. In some cases they are past redemption, having been so long neglected that they have run up into mere thickets of hoop poles. Young growth may everywhere be found, however, which are in condition to be taken in hand, and in almost all cases the work of thinning, and pruning may be entered upon with a certainty of profitable results if wisely and perseveringly conducted.

The work of thinning, as ordinarily conducted in the occasional instances in which on any account it has become desirable, is entrusted to mere laborers, who have no regard for the natural conditions which are essential to healthy growth, and which cannot be suddenly changed, without serious injury to the trees that are left.

All the small growth of shrubs, such as hazel, cornel, dogwood, elder, shad bush, etc., is first grubbed out and destroyed under the general term of "underbrush," and this not only throughout the interior of the wood, but round its outer edges where such shrubbery is apt to spring up in thickets, which serve the very important purpose of preventing the free passage of the wind over the surface soil of the interior, besides adding incalculably to the beauty of the wood, as seen from without by connecting the line of foliage of the trees, with that of the sward below, and presenting a living mass of verdure. The trees which are considered the most desirable to preserve, are then selected, and all the rest at once removed. Finally the leaves are carefully raked from the surface and carried off or burnt.

Sun and wind now have free access to the soil, and it very soon becomes parched and dry. The fine rootlets near the surface, which have heretofore been preserved by the never-failing moisture of the rich mould under its mulching of leaves, are converted into a mass of wiry fibres, no longer capable of conveying nourishment, even if it were within their reach. And while the means of supply are thus reduced, the tall, slender trunk, through which the sap must ascend to the leaves, is now exposed to the free action of the sun and winds. Now I do not presume to say, that evaporation can take place through the bark, but the provisions which nature makes to guard the inner vital tissues, from the effect of the sun's rays indicate beyond all question, that they are in some way injurious. I have elsewhere shown that in the case of the single tree growing by itself, the trunk is always shaded by the spreading foliage, when suffered to retain its natural form. In the forest, the trees shade each other, and thus effect the object by mutual action. But now let me call your attention to another provision of nature which few people observe, but the meaning of which is too obvious to be mistaken. If we examine the bark of an oak, elm, chestnut or maple of mature age, which has always stood by itself, exposed to the full influence of atmospheric changes, we find it to be of great thickness of very rugged character, and of a cork-like consistency, all of which characteristics make it the best possible non-conductor of heat or cold that can be imagined, under the protection of which the living tissues are safely kept from injury through the burning heat of summer and the intense cold of winter.

Now go into the forest where the trees shade each other, and wind and sun are excluded, and you will find that the bark of the trees, is smooth and thin in comparison with that of those in the open ground.

Nature never wastes her energies needlessly, and the trees in the woods do not require the thick coat of those that are exposed. But the effect of suddenly admitting the sun and wind upon them is precisely the same as that of exposing any portion of the human skin which had heretofore been clothed. It is to guard against injury from this source that experienced tree-planters, when removing large trees from the woods, are accustomed to swathe the trunks with ropes of straw, which is a rational process, yet it is by no means uncommon to see the reverse of this action. I have seen during the past winter a great many very large fine trees planted on the best avenues in Chicago, at a cost of certainly not less than fifty dollars each, from the trunks and large limbs of which all the rough bark had been carefully scraped, leaving only a thin, smooth covering over the inner tissues. This is as if a man should prepare for unusual exposure to heat or cold by laying aside all his clothing.

Few persons, even among those whose business is tree culture, as fruit-growers and nursery men, have any just conception of the value of thorough mulching, as a means of promoting the health and vigor of growing trees. In fact, such a mulching of the whole ground as nature provides in the forest by the annual fall of the leaves, may be said to be unknown in artificial culture, so rarely is it practiced, yet its immediate effect in promoting new and vigorous growth is such as would seem almost incredible to one who had not witnessed it, and affords one of the most beautiful illustrations of nature's methods of securing the most important results by such simple and incidental means that they escape our notice, though going on right under our eyes from year to year.

Of course the richest food for plant consumption is in the soil near the surface, but if that soil is subjected to alternations of temperature and moisture, sometimes baked in clods, and at others reduced to the consistency of mire, no roots can survive the changes. In the forest, as I have elsewhere said, these changes are prevented by the shade of the foliage and the mulching of fallen leaves. The rich mould of the surface soil maintains an even temperature, is always moist, and is everywhere permeated with fibrous roots drawing nourishment from the rich sources which surround them, and this process may be artificially imitated and the same results attained, by mulching, if properly done. It does not suffice to pile a few inches of straw or manure around each tree for a short distance from the trunk. If the tree stands singly, at a distance from others, the mulching should extend on every side beyond the spread of its branches; and in the case of an orchard, or young wood, the surface of the whole area it occupies should be covered with leaves, straw, shavings, chip-dirt, tan-bark or whatever material is most available, to a depth of several inches. I first learned the value of the process when a young man, on a coffee plantation in Cuba, where a portion of the hands were constantly employed in collecting refuse vegetable matter of all kinds, and spreading over the whole ground between the rows of the coffee bushes, to such depth as served to keep the surface cool and of even temperature, and also to prevent the growth of grass and weeds and thus supersede the necessity of ploughing between the rows.

Afterwards, when engaged in fruit culture in New Jersey, I practiced it in my vineyard and orchards with most satisfactory results, of which an account was published more than thirty years ago, in the *Horticulturist*, then edited by A. J. Downing.*

The trees and vines responded at once to my efforts in their behalf by such increased luxuriance of growth that it was easy to distinguish the portions that had been mulched as far as they could be seen, and, on digging into the surface soil under the mulching at any point, I found it filled with fibrous roots precisely as is the case in the leaf mould in the woods. No fruit-grower who has once tried this experiment will ever after forego the advantages it offers, and I have spoken of it thus at length from the obviously vital importance of its bearing on forest culture. A moment's reflection will show that in the opening and thinning of native wood which had grown thickly together, a heavy mulching of such portions of the ground as may unavoidably become exposed may be of most essential service in preserving the health and vigor of the trees that are to be retained.

It is difficult to lay down specific rules by which a novice could be guided in the work of opening and thinning out the wood of a native forest, except by fully impressing him with the importance of preserving, so far as is possible, the conditions which nature shows to be the most favorable to vigorous growth, and proceeding very cautiously when it becomes necessary to change the relative proportions of the influences which affect the vitality of the trees. The age and condition of the wood at the time the work is begun, are, of course, important elements for consideration. If the growth is not more than ten or fifteen years, and the trees have not sprung up so thickly as already to have become a mere thicket of hoop-

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***Horticulturist*, Vol 3, Page 113.

polès, but have preserved a reasonable degree of symmetry, its management can be much more easily controlled than if it has attained a more mature age, and espécially if the object is to create an ornamental grove composed of fine specimens of individual trees, a process by which the value of desirable residence sites in the vicinity of cities or large towns might often be very greatly increased.

Whether this be the object, or the development of timber, the first thing to be done is to select and place a distinguishing mark upon every tree which is ultimately to be retained. Then remove at first from its immediate vicinity only those which are actually crowding it, or impeding its growth by shading or interfering with its foliage. Those which simply shade the trunk or the ground around it are serving a useful purpose, and should not be disturbed. Indeed, if it is found that the necessary removals involve much increased exposure of the surface soil around the tree, it should at once be covered with the mulching of sufficient depth to prevent the possibility of its becoming heated and dry. All other sources of danger to the health of the trees are insignificant in comparison with that of the rude check they are liable to receive from sudden exposure of the trunks and surface roots to the influence of the sun and wind, from which they have heretofore been protected, and to which they can only become accustomed by a gradual change.

The next year it will be found that the tree has gladly availed itself of the opportunity for expansion, and has spread its limbs to fill the vacant space around it, so that more trees must now be removed, while the increased mass of foliage it has developed renders it less liable to suffer injury from their loss.

The removal of the undergrowth of shrubbery, should be very cautiously conducted, and in no case should it be removed from the outskirts of the wood, which should everywhere be left with as dense a growth as possible, to prevent the entrance of the winds.

The sirocco-like wind from the S. W., which often blows with great violence for days together, especially in the spring and early summer, when the trees are full of sap and the young shoots and leaves are tender and sensitive, is the one from which most danger is to be apprehended. The merely mechanical injury it inflicts upon the spray and foliage is often serious, and its worst effects are due to its absorption of moisture and vitality.

All experienced nurserymen and fruit-growers, have learned to dread its exhausting influences especially upon grape vines and other broad leaved plants, and they too are aware of the fact, which comparatively few ordinary observers seem to have noticed, that its effects in giving a general trend of the spray and branches of trees in exposed situations towards the N. E., is so marked that no one who has learned to observe it, need ever be long at a loss to know the points of the compass in any part of the country.

The fact, however, that we have it in our power to guard against the evil effects of this wind by artificial means, is not so generally known as it should be, and it was only after many years observation and experience that I came to a full realization of certain facts in connection with its action, which have a most important bearing upon the question of forest culture.

I became aware, many years since, that many shrubs, trees and plants would grow and thrive at Newport, R. I., and at Yarmouth, Nova Scotia, which in the interior were only found much farther south, and would certainly perish if removed to the latitude of those towns. The reason assigned in both cases was the warming influence of the neighboring gulf stream, which seemed a plausible explanation in which my faith remained unshaken for years, until I went to Chicago, where I found it was impossible to grow many of the finer fruits, and some of the forest trees which elsewhere are found in much higher latitudes. Neither peaches or grapes can be grown at Chicago, or at any other point on the western side of the lake without artificial protection, and the native growth of wood is very meagre, and many varieties which elsewhere are found much farther north, as the beech and the hemlock cannot be grown; yet the eastern shore of the lake, only sixty miles distant, has no superior in the whole country as a fruit growing region. Peaches, grapes, strawberries, etc., grow most luxuriantly anywhere on that shore up to the northern extremity of the lake, three hundred miles north of Chicago, and every variety of forest tree indigenous to the country is found in the best condition of vigorous health.

There is no gulf stream to account for this difference, but the relative position towards the lake of the whole extent of its fruitful shore is the same as that of Newport and Nova Scotia towards the ocean. In both cases the S. W. wind reaches the shore after passing for a long distance over water, and instead of burning and exhausting vegetation with a breath of fire, it comes laden with the moisture it has gathered up in its passage, and brings health and strength upon its wings, instead of disease and death. Further reflection served to convince me that the rule was susceptible of much wider application, and serves to explain the different vegetation of the eastern and western shores of great continents in the same parallels of latitude. Central Spain and southern Italy, the lands of the orange and grape are in the same latitude as Boston, and going west on the same parellel to California, we again find ourselves surrounded with fruits and plants which in Boston can only be grown under glass. Continuing our western flight across the Pacific, we find the flora of Eastern Asia to bear, in many respects, a striking resemblance to that of Eastern America.

These facts have certainly a very important bearing upon the question of forest culture. They prove that the S. W. wind of spring and early summer is perhaps the worst enemy we have to guard against, and also that its deleterious influences are neutralized when it passes over a large body of water. It is comparatively rare however, that a situation can be secured affording that advantage, and the question naturally arises, are there no other means of protection? I am happy to have it in my power again to summon nature as a witness that such means are within our reach.

I have said that the beech would not grow near Chicago, a fact which I was very reluctant to admit on first going there, and was only fully convinced of its truth by witnessing repeated failures, and the evidence of reliable nurserymen who had tried in vain to preserve it. Yet after I had long been satisfied that it was idle to attempt its culture, I was one day amazed, while surveying in the woods a few miles from the city, at coming upon a little group of beech trees comprising some twenty or thirty in all, of mature size and in full health and vigor. On examining the situation, to discover, if possible, an explanation of the phenomenon, I observed first that they stood in the bottom of a ravine so deep that their tops were scarcely even with its banks, while the woods which surrounded them extended more than a mile to the S. W., so that they were completely sheltered from the effects of the wind from that quarter. I have never been able to find or to hear of another beech tree anywhere in that region, and can only account for their presence by supposing the seed to have been brought from a distance by birds, probably crows, jays or wild pigeons, and dropped accidentally on a spot, which proved to be a "coigne of vantage," where they were safe from the enemy. The evidence thus afforded of the value of a screen on the S. W. side, should not be lost upon those who are selecting sites for orchards, or vineyards, and shows the importance when thinning a wood, of leaving whatever shrubbery or foliage there may be on that side to arrest the progress of the wind.

The work of pruning the trees which are to be preserved for timber involves a careful consideration of the principles I have set forth, apart from the judgment required for the skillful performance of the mere manual labor. The object in view being the development of the bole, it is important to remove any limbs which threaten to become its rivals in size, if any such have become established before the work of improvement began. But after the trunk has attained the desired height, it is on all accounts desirable to develop the largest possible mass of foliage, because the making of wood can only be effected by the elaboration of the sap, which is the work of the leaves.

If one is rearing a new forest, in which the trees have been under his control from the time of planting, it must be the result of his own ignorance or negligence if he has failed to secure such forms as he desired, since it is easy to direct the growth of young trees, and prevent them from running into extravagances, which will unfit them for service as timber. And not unfrequently we may find a young wood of indigenous growth, which may be taken in hand and wrought into such shape that its future progress can be easily directed. But, for the most part, in woods that have been suffered to run wild till they have approached maturity, a good deal of skillful pruning will be required to bring the individual trees that are to be preserved into such form as will give them most value. Nothing but practice and careful observation can confer this power. The little treatise of DesCars on the pruning of forest and ornamental trees, translated by Mr. C. S. Sargent, of the *Arnold Arboretum*, and published by A. Williams & Co., of Boston (price 75 cents) contains full and explicit illustrated directions for all the manual work of pruning, and is invaluable as a guide to the novice, and a work of reference to experienced foresters. But mere manual skill in the performance of the work will be of little avail without the application of a thorough knowledge of the principles of tree growth, and a strict compliance with the requirements of their nature.

If our agriculturists will but apply to the management of their forests the same intelligence with which they direct the culture of other farm crops, they will find an equally ready response to their efforts. The farmer who should leave his field of corn or potatoes to shift for itself, or suffer his cattle and hogs to ramble through it at will, would be justly sneered at by his neighbors and punished by the loss of his crop—and trees have no more capacity for self-management than corn or other vegetables, and are quite as ready to profit by judicious culture, and to yield returns corresponding to the care bestowed upon them. They are not liable to be utterly destroyed, as corn is, by the incursions of live stock, but they do suffer serious injury from the trampling and rooting up of the ground. I have seen beautiful groves of oaks in Iowa full of dead and dying trees, and, on asking the cause, have been told that the native woods "can't stand civilization," but always die out when cattle begin to run in them; and I am told that, in Kentucky and elsewhere in the South, the young growth is found to contain only the inferior varieties of oaks, as the swine running in the woods seek and greedily eat the acorns of the white oak, on account of their superior sweetness. Has anyone ever estimated the cost of raising hogs on such food?

I have endeavored in the preceding pages, to confine myself to the special features of forest growth which need to be regarded in the effort to develop and improve a native wood, wherever it may be. The planting and culture of an artificial forest is quite another affair, and I have made no allusion to it because my special object has been, if possible, to urge the fact, and arouse attention to it, that we still have vast resources of latent wealth on every side, susceptible of development by proper managment, which we are everywhere suffering to run to waste. The work of planting and rearing artificial forests can not indeed be urged too strongly, and there is no danger of its being overdone. But the conviction of its necessity can be more readily and forcibly impressed upon the popular mind by an illustration of the possibilities of forest culture, when applied to our native woods, than by any other means. The need of further progress by artificial planting will speedily become obvious, and will follow in natural course.

It has been asserted, and with truth, that it is idle for us to establish schools of forestry, because there is no demand for foresters, and consequently no stimulus to the acquirement of a knowledge of the theory and practice of the art. It will be time enough to establish such schools, it is said, when we have evidence that there are people who desire to avail themselves of the advantages they offer, and that will not be till there is a demand for the services of those who have done so. This is true, so far as it goes, but the next consideration is, how to create the demand. There was no demand a few years ago for telegraph operators, and when I was a boy there was no demand for railroad employes, for there were no railroads. How was the demand created? By showing the importance of the results. Think of the time and labor expended by Morse and his associates before they could get permission to demonstrate the value of the electric telegraph by a line from Washington to Baltimore. No general interest was felt in the scheme till its advantages were thus made manifest, because there was no *realizing conviction* of its truth. And to-day we are in a similar position in reference to the question of forestry. The impending danger of the diminishing supply of timber is acknowledged by all who are familiar with the subject, but there is no realizing sense of it in the popular mind, and there is a want of confidence in the practicability of any of the proposed measures of relief. The first and most important thing to do, therefore, is to stimulate popular interest by showing what *can* be done. To create a popular demand of any kind, it is essential first to demonstrate the value of its object. The men who are familiar with forest culture, know, as well as Morse knew the capability of the telegraph, that the wealth of the nation may be enormously increased by the proper development of the native woods already standing, but they can point to no evidence of the truth of their assertion, and the fact that it has not been done is regarded as proof of its impossibility. There is no such thing in the country as an illustrative example of what may be accomplished by timber culture, and very few of our citizens who visit Europe can appreciate the works which have there been achieved. They go abroad to study works of art, with the idea that we have nothing to learn in regard to natural productions, and the comparatively small number who grasp the conception of the grand possibilities of development which our forests offer to the exercise of such artificial culture as may there be seen, can do no more on their return than express their convictions and urge the importance of acting upon them. This they have done for many years past, but they have not succeeded in arousing such a popular conviction of the necessity as should enforce the action of their representatives to the point of making needful provision. The enormous and costly scale on which the work of planting new forests must be undertaken, in order to be effective, seems to throw a damper upon every effort to bring it to pass.

If every owner of a wood lot could be convinced that its value might be enormously increased by a process which, so far from demanding an outlay, would add to his annual income, it would not be long before farmers would consider it as derogatory to their reputation to leave the forests in the wild condition they now are, as they would to have a field of corn presenting a similar appearance of slovenliness. To produce such conviction the truth must be demonstrated in actual practice, and the cost of such demonstration will be but a trifling price to pay for the returns it will bring. Let any state or city select a track of woodland at some easily accessible point, and put it under a proper course of management, as an experimental forest, and it would very soon excite an interest which could not fail to increase. A portion of it should be suffered to remain in its original, unimproved condition. Another part should be improved as "open park," for the best developmeut of individual trees in their fullest natural capacity of dignity and grace, and a third portion should be devoted to the production of timber by the process of thinning, pruning and proper culture. The progress of development could then be seen and watched from year to year in all its stages. and the demonstration thus afforded would touch the interest of every owner of a wood lot. The process would soon begin to be imitated, a conviction of the value and importance of a knowledge of forestry would become established in the popular mind, and the demand for the services of those who had acquired it would lead to a demand for the means of acquirement, and thus the schools of forestry would be called into existence by the natural course of events.

The inauguration of such an experimental or illustrative forest as a means of exciting public interest is suerly an object that is well worthy the consideration of legislative and municipal bodies, or of corporations whose interests are connected with this form of national wealth. The cost would be insignificant in comparison with that of planting and maintaining new forests, and the spur of presonal interest would incite such general action as would add incalculably to the wealth of every State without further outlay than the cost of demonstration.

It is of course desirable that the experimental forest should be as conspicuous and easily accessible to the public as possible, for which reason the vicinity of a city would seem the most appropriate point. And municipal bodies would be justified in making a liberal appropriation for the promotion of such an object, since it would certainly constitute, for great numbers of people, one of the principal attractions of the city. The beneficial results which would follow, however, would add so largely to the substantial wealth and power of the State that its main support should be derived from legislative rather than municipal action.

It is not, however, my province to discuss the means of effecting the work, beyond this general suggestion.

I have aimed only to convey a conception of the rich resources which nature has placed at our disposal, if we choose to avail ourselves of her offer.

I have made no statement in regard to forest growth which will not be recognized as true by all who are familiar with the subject, and all such persons will endorse my statement that, *practically*, the rules which govern the process are universally ignored.

I have pointed out what I conceive to be the readist means of awakening public attention and creating such general interest as will insure reform and I leave to other hands the task of arranging the laws which must govern its execution.

The morning session of Thursday, March 9th, 1883, was devoted to Market Gardening, by J. S. Harris, of La Crescent, President of Minnesota State Horticultual Society, who spoke as follows:

LADIES AND GENTLEMEN:—When Professor Porter invited me to assist him in this course of lectures, I did not consent because I believed that I had any peculiar talent in that way, but because I have a great respect for farmers and farming, and because I desire to encourage everything that will add dignity to the calling and bring prosperity to those who follow it. Farming is the leading and essential business of about one half of the laboring population of this State, and is the basis of the wealth, power and prosperity of the American people. Whatever lessens its dignity or lowers its appreciation tends to demoralize the nation and just in the ratio in which this is done, do we retrograde and go back toward barbarism, just in proportion as we lend dignity to it so far do we advance national greatness. It was the original and divinely appointed calling of man. We read in Holy Writ that God planted a garden in Eden, and made it man's duty to keep and dress it. When driven from Eden, it was still his duty to till the soil, and "Earn his bread by the sweat of his brow." From that time down to the present, agriculture has been the basis of all progress, and on its prosperity hangs the hope of the race more than any other calling or industry, and without it no other calling or industry could exist for any length of time. If it does not provide means of salvation for the increasing population of the world, there could be no growth and progress, and now and ages since mankind would be a race of canibals or imbecile barbarians and few in number compared with the teeming millions who constitute the present population. Agriculture is the lever which moves the world, and forces the development of the arts and sciences. It is its strength that has tamed the elements and trained them to the use of man. She has made highways across the trackless seas and linked ocean to ocean with chains of steel, and even the lightnings acknowledge her power and gracefully submit to do her bidding. Commerce and manufacturers are her children, and without her motherly care could not exist. The farmer is a man of knowledge and agriculture has been brought to its present honorable position by the intelligence and energy of those who pursue it as their chief occupation. We often hear it remarked that any man with sufficient muscle is good enough for a farmer, that such can dig and delve, and will enjoy it better than the refined and educated man, but it is the fact, that to enjoy it and prosper in it, a man must have brains and knowledge, and there is no calling so well fitted to give a man more profound knowledge or comprehensive education. Therefore the true farmer is a man of knowledge whether he knows it or not, and the time is at hand when he will be the most thoroughly educated of all men.

But my topic is "Market Gardening" or what is frequently termed Truck farming, and it ranks in importance not one whit behind those branches of farming which have been so ably presented and described in this course of lectures. It is a branch of agriculture that may be followed by the man of limited means, who could not successfully engage in stock breeding, dairying, wool growing or the raising of grain, while it also gives ample scope for the use of capital, and it is a system of husbandry that will cause the earth to afford more human food from a given quantity of soil than any other. I do not claim that it is more honorable, lucrative or important than other vocations, but that it is equally so and merits a little of our attention. It is a branch of business that is more particularly adapted to the vicinity of cities and large towns where the limited grounds attached to tenement houses, will not permit private gardening, and because many of its most valuable products are of so perishable a nature or so bulky in proportion to their commercial value that they would not pay the expense of distant transportation. Whoever contemplates engaging in the business should bear in mind that it is a laborious one and that it requires in the man who follows it skill and tact, and that education is no disadvantage although not an absolute necessity. Although laborious, the business is not so heavy as in some branches of farming but is constant, pleasant and healthful, and usually profitable.

As I have said before, a large capital is not an absolute necessity, here in the West where good arable land is comparatively cheap, but the man with a small money capital must start in a small way and enlarge and branch out as his means will permit, and a young man starting in the business in this way will be fully as likely to make a fortune as the one who starts in other business with a capital, will be to save it, for the reason that he will at first be compelled to rely mainly upon his own labor, and practice rigid economy. The man who intends to engage in market gardening cannot use too much caution in selecting a locality. It should be within a convenient distance and of easy access to some thriving village or city that will afford a ready market for all that is produced. Peter Henderson says in his admirable work *Gardening for Profit*, "it is always better to pay a rent or interest of $50 or even $100 per acre on land one or two miles from market than to take the same quality of land 6 or 7 miles distant for nothing for the extra expense of teaming, procuring manure and of greater difficulty of attaining labor far more than counterbalances the difference in the rental of land." This, of course, has a more especial reference to the business in the vicinity of New York. In this State, except in the vicinity of St. Paul and Minneapolis, the purchase money of land suited to the purpose would not greatly exceed that sum, and ordinarily less manure is required, and teams are more cheaply fed, but the reasons will hold equally good here as there, aside from taking account of the extra time consumed in traveling to and from a greater distance. This, of course, applies only to those who raise bulky and perishable crops and do their own marketing. A market gardener who gives his attention chiefly to growing vegetables of a less bulky or perishable nature, and that will bear shipments to long distances may locate his garden anywhere, at a point convenient to a railroad station and depend upon making his sales to dealers, and do well, especially if he can grow a better quality or get them into market a little ahead of those who are located nearer by. Where land is as cheap as it is in this State, and so good an opportunity is afforded for making a selection, it will not be an object to use any that is not cheaply put into condition, or that is not the best adapted to the kind of crops it is designed to grow. Somewhat of a variety of soil is desirable, but if confined to one kind of soil in a garden for all purposes, I should choose a deep, rich, sandy loam—having a porous subsoil of sandy loam. A light, sandy soil with a sand or gravel subsoil, is almost useless for the growing of late crops, and especially onions, cabbage, cauliflower and celery, while a stiff clay loam, with clay or hardpan subsoil, could hardly be made to pay for growing salads, melons, cucumbers, radishes, tomatoes, etc., but this kind of soil, if deeply underdrained and well worked, will be the very best for late cabbage, cauliflower and celery. It is very bad policy to select land that has been worn out or run down by injudicious cropping and bad cultivation, or that is naturally of very poor quality, because the labor and expense of putting such land into good heart will be more than is required to take off two or three crops from the good soil. In selecting a garden site it is well to select one that is nearly level with just slope enough toward south or east to give good surface drainage. The reasons are that upon nearly level ground the plowing and fitting can be done more cheaply, and a large part of the cultivation may be done with a horse ; and it will not gully in heavy rains, which would destroy and carry away much of the best soil. Southern slopes have advantages for growing early crops, but if any ways steep will require horizontal ditches to conduct water away and prevent washing, the expense of which will be very little less than erecting walls or tight board fences upon the north side. Under-draining is but little practiced in this state, but it would pay well wherever the subsoil is retentive of water. In this country the preparation of the soil is always done with a team and plow. In Europe garden soil is fitted by trenching. The operation consists in opening a ditch upon one side of the plat, about three feet wide and one foot deep, throwing the soil removed to one side. Manure and litter is spread in the ditch made and dug in as deeply as well can be. Then, on the next course of three feet deep, the soil is removed and placed in the first ditch, and the bottom of the ditch served the same as the last. This is continued until the whole plat is dug over, when the soil thrown out of the first ditch is carted over to fill the last. Unsightly rubbish, small brush and bones are frequently buried in the bottom, and land prepared in this manner is in good condition for all kinds of crops, and will be loose and friable for many years, but the process is a slow and laborious one, and in this country where labor is scarce and dear is not practical. In that country the spade is used much more than this in the place of the plow, but it is too slow a method for the American people, and unless very perfectly done is not in my judgment as good as plowing. My method of preparing soil for a garden in this State is with a strong team and plow. If the ground is in natural sod, it must first be broken, an operation that is familiar to you all. This is best done in June when all vegetation is in its most luxuriant growth, and the vegetation should all be turned under to facilitate the rotting and retain its fertility. The ground may lay without a crop the first summer, being harrowed once or twice to destroy weeds, or a crop of beans or sod corn may be taken off, that will pay a part of the expense incurred, but the best plan would be to yard a flock of sheep upon it. If the breaking was well done and the season has been reasonably favorable the soil will be pretty well rotted by fall, and it should be dragged and plowed before winter sets in and somewhat deeper than it was broken. If manure is at hand it will be beneficial if turned under at this plowing; and if the land is not fertile it is highly important that it should be done. The next spring it will be ready for use, but there are some crops that might not pay the first year; probably the safest crop would be corn, potatoes, tomatoes, late cabbage, melons and cucumbers, giving another years' time before sowing fine seeds. For most garden crops ground will require liberal and frequent applications of fertilizers and you can hardly apply too much for asparagus, cabbage, cauliflower and celery. Stable or barnyard manure is considered the best and most natural fertilizer for all crops as containing the constituents that go to make up the cellular structure of plants and the gardener who has a liberal pile always at hand has deposits in a bank that never breaks or suspends payments. Where a sufficient quantity of barnyard manure cannot be procured, Peruvian guano is considered the best for general crops. In applying, it is sown over the surface after plowing at the rate 800 or 1000 pounds per acre and then thoroughly harrowed in, and the crop is to be put in at once. For cabbage and cauliflower it is said to be an excellent fertilizer either used in the hill or sown broadcast and harrowed in. Lime, ashes, salt and almost every waste material of the house has great value when applied to the land as the earliest vegetables of their kind always meet with the most ready sale and often at two or three times better prices. The thrifty gardener will resort to every means within his power to hasten forward his plants, that he may be the first in the market. The best devices for this purpose are manure, hot-beds, cold frames, forcing pits and green houses or other glass structures that enable the gardener to have under his control the heat and atmospheric conditions necessary to growth no matter what the state of the weather outside may be. The first cost of hot beds and cold frames being the least they are much more generally used than the others. The best material for hot beds is fresh manure and litter from the horse stables. It is all the beter if it contains considerable of a proportion of grain straw or leaves from the forest, as these material will generate heat much longer than the fine manure or mixtures with hay, which is very commonly used for bedding in this county. About three weeks or so before the time for making hot beds the manure designed for the purpose should be hauled out and placed in piles or ricks near where the beds are to be made. It will not do to leave it scattered about to become frozen or it will be too late in generating heat. After a few days when the heat begins to come up which may be known by the escape of steam from the pile, the whole mass should be forked over and mixed well together. As soon as fermentation again begins it is ready to lay up into beds. The beds may be built upon the surface of the ground, but in this climate it is economy to excavate pits a foot or more deep and one foot longer and wider than the frame, which is to cover it after completed. In building the bed the manure laid in level courses beating each course evenly down with the back of the fork until the whole is one and a half or two feet deep finishing off the top with the finest manure or earthy rakings from the bottom of the pile. When the manure bed is completed we place upon it a frame made of inch boards one foot deep in front and one and one-half at the back this should be put on with the lowest side facing the south to admit the more direct rays of the sun and the sash are put on immediately. As soon as the heat is up which is usually in two or three days, remove the sash and place within the frame about six inches deep, of good, but rather light garden mould and replace the sash again, after leveling off the surface with a rake, and removing sticks, stones, and other rubbish. Now, when this soil gets warmed through, it is ready to receive the seeds. These we sow in rows across the bed, about three inches apart. Cabbage, cauliflower and lettuce should not be mixed in promiscuously with tomatoes, egg plants, peppers, &c., as the latter require a greater degree of heat to bring them up, and will endure a degree that would be disastrous to the first. After hot beds are sowed they will require constant attention to give air when too warm, and whenever the sun shines out brightly, and water when needed. I have often seen the entire contents of the bed burned up in a short time, where the sun suddenly came out brightly on a stormy day, with no one at hand to give ventilation. Hot bed sash can be made by any ordinary carpenter, or they can easily be purchased in our larger towns, ready-painted and glazed. The most convenient size is 2½ to 3 feet wide by 6 long. Cold frames are much the same as hot beds, except the manure is left out, and we depend upon the rays of the sun to impart heat and extra coverings and protection at night to retain it. Cold frames are very useful for growing cabbage plants, and for transplanting into from the hot beds for hardening off. Both cold frames and hot beds are much better for being sheltered on the north side by buildings, walls or close board fence.

IMPLEMENTS.

The gardener should use the best implements that can be procured. The first cost may be a little more, but they will prove more durable, and will enable *him to do* his work better and more expeditiously. Within the last forty years inventors have brought out many improvents in these, and added to the list some that save considerable labor, so that the labor of planting a garden is more pleasant and the cultivating more expeditious than formerly. The implements that are nearly indispensable are a two-horse steel plow, an Ames' bright spade and shovel, flat tined spade fork, cast-steel rake, harrow, shuffle or push hoe, pronged hoe, or potato hook, cultivator and horse hoe, and drill-wheel hoe, or the two combined in one, of which *Allen's Planet Gem* are fully as good as any in use, wheel-barrow, manure fork, line and reel, watering pot, &c.; one each of plow, harrow, seed drills, cultivator, and more in numbers of the others according to the size of the garden and number of men employed. The total cost of the above, I think, will not exceed $100.00. A good substantial market wagon is another of the requisites.

Seeds.—If there is any one thing that is of more importance than any other toward success, it seems to me that it is good, pure seeds. For this reason, were it practical, it would be better for every one to grow and save his own seed, or have it grown expressly for him; but no gardener, who grows a general variety of vegetables, can raise his own seed, and keep it pure, on account of the liability of varieties to mix. Another difficulty in the way is that only the earliest and best specimens should be saved, for producing seeds, and these are just what his customers want, and they will frequently bring him much more than the seed would be worth. Seeds had better, as a rule, be raised on larger farms more distant from the city, and where there is room to keep the varieties and species widely separate. Again some varieties quickly deteriorate on our soil and climate, and are much better and cheaply grown in Europe. Of many varieties Minnesota grown seeds will be found superior to any others. It is well known that grains and vegetables go through an acclimating process, after being introduced here for several years increase in earliness and often in beauty of appearance and fine flavor. Especially is this the case with corn, lima beans and tomatoes. I would recommend any gardener to grow even a large proportion of his seeds, and in no case more than one variety of a family or species. This advice makes it necessary to purchase considerable of our seed, and the question that meets us is where is the best place to purchase. There are a number of reliable seed firms in the United States that grow everything that is best grown here and import the balance from the growers of Europe. If you have been dealing with any such firm for a number of years and find them always reliable, remember that it is not generally good policy to swap off an old friend for a new one. If you have no such place to secure your seeds, I would advise you to purchase the bulk of them at home. We have two seed houses in this State, and perhaps more that have already established a reputation for fair dealing and the superior quality of seeds and a considerable proportion of their seeds are not only produced in this State, but in the most careful and skillful manner, and unless you have good reasons to the contrary, I shall recommend you to give them your support. True they do not grow all the seeds they sell, and neither do the more Eastern firms. I think that as a rule it will be better not to divide your patronage, as the one you deal with will have better facilities than you, for securing the best. Never purchase any article for the reason that it can be had cheaper than in any other place. As a rule the price of good seed is nearly the same everywhere. Also, it is well to shun the commission seeds that are kept on sale at the grocery stores. Whoever attempts to raise his own seed should invariably select for the purpose the best grown specimens and purest type of the variety to prevent deterioration. The mixing of varieties takes place while the plant is in flower, the pollen from one being carried to another by the winds and insects. The commingling of the flower, and crossing process seldom affects the fruit or vegetable the same season, except where it is the true seed that is valuable as in the case of corn. It is well known sweet corn, fertilized by the field varieties, becomes tough and looses much of its sweetness. In all cases the effect is seen in the next crop, grown from the seed, and in no family of vegetables more than the cucurbitaceæ, which includes our cucumbers, melons, squashes, etc. There is scarcely a farmer present who has not planted melon seeds and grown mongrel pumpkins and squashes; still this crossing process is not without its advantages when skillfully managed, for by it some valuable hybrids have been and may be originated, that by judicious selection and cultivation retain their types. The following is a list of the vegetables the market gardener is expected to be able to furnish to his customers, of which I will only mention such varieties of each as my experience has demonstrated to be the best for this climate. Asparagus—Conover's colossal. Beans—bush or dwarf; for shell beans, early China, red eye, white marrowfat, York snaps, early valentine, German black seeded wax, golden wax beans, pole or running, Seria or small Lima, large white Lima, Horticultural or speckled cranberry. Beets—Egyptian turnip, Dewing's improved blood turnip. Cabbage—early Jersey, Wakefield, early dwarf, flat Dutch, premium flat Dutch, green curled savoy, red Dutch for pickling. Carrots—early scarlet horn, half long red, improved Lanser's. Cauliflower — Henderson's early snowball, early dwarf Erfurt and Algiers. Celery — Sandringham, dwarf white celaric or turnip-rooted. Corn — Marblehead, early Minnesota, Harris Esveyson, Stowell's evergreen. Cucumbers—early Russian, improved white spine and green prolific pickling. Egg plant — improved New York purple, early green curled. *Kohl Rabi* — early white Vienna. Lettuce — early curled, Simpson, black seeded butter and Hanson. Musk melon — large netted nutmeg. Green citron — Hackensack and Bay View. Watermelon — Phinney's early, mountain sweet. Onion — extra early, red globe, white globe, yellow globe. Parsnips — sugar or hollow crown. Peas—Landreth's extra early, little gem, Laxton's alpine, champion of England. Pepper—sweet mountain or mammoth, long cayenne. Pumpkin — large cheese. Radish — early scarlet turnip, French breakfast, white olive shaped, scarlet China winter. Rhubarb—Linnœus or wine plant, salsify or vegetable oyster. One variety of spinach. Savoy leafed, new thick leafed. Squash—early bush scalloped for summer, Hubbard, Butman, Boston marrow for winter use. Tomato — Canada Victor, trophy, acme, paragon, and for trial Livingston's, perfection. Turnips — early flat Dutch, early red top, strap leaf, yellow globe or golden ball. Rutabaga, improved purple top, Laing's improved and a few herbs such as sage, summer savory, majorum and Thyme. Time will not permit me to give a description of each of these varieties, or a detailed description of the methods of cultivation and fitting for market. But they are all such as the gardener, who is located so convenient to market that he can go in every day, will find it profitable to grow, and that of the best quality and to get them into the market as early in the season as they can possibly be matured. The gardener distant from market may find it more profitable to omit lettuce, sweet corn, summer squash, and a few others. I have purposely omitted potatoes, as I grow only the early, and am not able to discuss the merits of the many fine varieties recently introduced. For early I have found the Beauty of Hebron to be about the best. To grow vegetables to perfection requires constant attention in keeping the weeds out and the surface of the soil mellow and loose, and the appearance and condition in which they are placed on the market adds very much to their value and readiness of sale. All early vegetables that are usually bunched should be washed clean, surplus leaves removed, and be tied into uniform sized bundles and so much of the tops neatly cut off as will not mar the appearance of the bunch, as this prevents wilting. I will now give a more detailed account of my method of growing two or three of the more important varieties, by which time you will be weary enough to let me off with good grace.

I will first describe the making of an asparagus bed, as my friend Smith is present and can help me out or correct any errors I may make, and afterward follow with my method of growing tomatoes, if time will permit.

ASPARAGUS.

This is one of the most important crops that the market gardener has to do with. It is the earliest culinary vegetable that comes into the market; is wholesome and rapidly growing in favor; is very profitable, and ought to be produced in such quantities as will bring it within the reach of the laboring classes. It takes two years of cultivation to bring new or wild land into that state of cultivation that best fits it for this vegetable. As it is a plant that endures for many years, and will grow better with age, it will well pay for the best of treatment. The cheapest method that I know of for forming an asparagus bed is as early in the spring as the ground is dry enough to work to select a piece of dry, sandy loam, and with a one-horse plow, or cornmarker, draw furrows across it, four feet apart, and follow with a common plow, returning in the same furrow, repeatedly until a ditch a foot deep is opened, and the soil opened at least sixteen inches in the bottom of this ditch; spread three or four inches of well-soaked manure (that from stall fed cattle is the best); then place on this a little soil, and drop the roots, which should be two years old, about 18 inches apart. This seems a waste of ground at the first; but the beds will endure longer, and produce a better quality of asparagus for it. The plants are to be covered by drawing 3 or 4 inches of soil over them with a hoe. This leaves the trench a little more than half filled, and the sprouts will soon come through; while if filled, some of the weakest plants will be smothered. Frequent hoeing must be given the first summer to encourage the strongest possible growth, and to keep down all weeds.

In the fall when first frost occurs the tops are to be cut away, and the ditches filled up level with the surface, and the whole ground covered with a liberal dressing of manure. The next spring the beds may receive a shallow plowing, being careful not to go deep enough to disturb the roots, and a few days level overwith a harrow; and during this season the principal part of the cultivation can be done with a horse and cultivator. No cuttings ought to be made yet this year. In the fall remove the tops, and cover again with manure. The next spring rake out the coarsest of the litter and plow between the rows, throwing the furrows over the row, and rake it over to remove all lumps, sticks and stones. This leaves a shallow ditch between the rows. This season the bed will yield considerable of a crop of asparagus, and to keep it in good condition, it should be cut every day, and after every rain the surface should be gone over carefully to keep it loose and fine. The cutting should not be continued too late this season, lest the roots become weakened. When the cutting is stopped there should be a liberal dressing of manure applied between the rows and the ridges over the rows plowed down, and the whole bed be harrowed over fine and level, and all asparagus that comes up afterward is left to grow the balance of the season. It is beneficial to applyal liberal dressing of salt after the cutting is finished and the bed laid away for the summer, and it is imperative that no weeds are allowed to impede the growth of the asparagus or impoverish the land. In the fall remove the tops as last year, cover with manure, and each year give the same treatment as we have described for the last, and the bed will continue to grow better for many years and be a paying investment for at least twenty years. About when to cut asparagus to have it the best there is a diversity of opinion. It should always be cut two or three inches or more beneath the surface of the ground, using a long knife for the purpose. If a crisp green article is demanded by your customers let it get about six inches above the surface before cutting, as at that stage of growth all below the surface of the ground will be tough and stringy. If a pure white article is wanted it must be cut as soon as it breaks the ground, and be sure to cut at least six inches below to give a suitable length for bunching; and great care must be exercised not to break or injure the buds that are not yet through. After it is cut it is to be washed clean and put into bundles, tops even and all one way, neatly tied with two strings, the buts cut off square so that the bunches will be of uniform length, when it is ready for market. If it is not sold immediately it must be kept in a cool place, and never be watered to freshen it up, or it will quickly decay. If the market could be educated to it, it would be better without washing as it would thus keep much longer, and in fair weather cut at evening will not have much soil adhering.

GROWING TOMATOES.

This is an important and valuable crop if they can be well grown and got into the market early. For the earliest sow seeds in hotbed about the 15th of March. They will come up in from four to six days, and will need watching and watering and air on all pleasant days to prevent burning or damping. At the end of two weeks they will be in their second or rough leaf. My practice at this time is to have another hotbed ready, and to take up the young plants carefully and prick them out into it in rows three or four inches apart and an inch or so distant in the rows. This operation is best done at evening or on a cloudy day. Water immediately after setting and shade for a day or two when the sun shines. They will quickly get accustomed to their new quarters and will require plenty of air on all mild days. When they get about six inches high I take up and transplant again into cold frames, keeping them covered with sash nights and stormy days, where they are to remain until time for transferring to the open ground. In this frame they stand four to six inches distant each way and will be strong and stocky and can be taken up with spade or trowel, leaving most of the roots and a large ball of earth attached, and if carefully planted will receive no check in their growth.

For early tomatoes, I prefer a rather sandy loam not made too rich with manure. This is best plowed two weeks before the plants are to be planted out.

I never like to transplant them when the ground is wet or upon a rainy day, but do not object to a smart shower soon after the work is done. I have usually got the best results where the rows are 4½ feet apart and the plants 3 feet in the row. If the ground is dry make the hills with a spade or spade fork shoving it down full length lifting out the soil and inserting it back into the hole made; this leaves the surface moist and loose. The plants are now carefully dropped one at each hill and a man or boy follows taking the plant in his left hand opens a hole in the fine soil with the right, setting the plant in considerable deeper than it stood in the bed and with a quick motion of the hands draws the earth about it and in the same motion presses it firmly with the knuckles. If the soil is not rather moist the planter goes back on the row pressing it about the plants with his feet, afterward drawing a little loose earth over the surface to serve as a mulch and prevent baking after showers. I prefer the evening for transplanting tomatoes (and all other plants) and whenever possible use rather large stocky transplanted plants, carefully taken from the beds with a trowel and with such plants never water no matter how dry the weather may be; but the plants should be thoroughly watered in the bed a few hours before taken out. I am aware that this method is not as expeditious as using smaller plants and sitting with a dibble but I have always found it much the cheapest in the end unless the weather should prove very favorable, as this vegetable is one of the gardener's most important crops and pays much better if ripened early.

The afternoon session of Thursday, March 9th, 1882, was also devoted to gardening when Mr. W. S. Hollister, Secretary of the State Horticultural Society, presented the following paper on Farmer's Gardens.

The farmer of the present as compared to him who tilled the soil a half century ago, surely occupies an enviable position.

Education has done the work; prejudice has been swept aside by her all powerful influence, and to-day, the American farmer, stands forth well toward the center of the arena of active life, a representative citizen.

The students of science and mechanical art, recognizing the fact that agriculture held the formost place of all the industries of the world, have bent their best energies to further your interests.

Science does not trim her lamp in vain, and as a result of her labors, we find theory and practice reconciled; we find book "farmers" the most successful ones; we find refinement seeking a congenial home in rural places; we find farmers' sons and daughters no longer ashamed of their vocation; we find the farmer himself demanding the constitutional political privileges of citizenship, and asserting his commercial and social position. He has ceased to believe that because his avocation gives him health, renders his arm strong, and his nerve steady, that his brain is therefore the the less active, and is prone to do much of his own thinking, and much of the agricultural talking, that used to be delegated to lawyers and doctors and politicians; and as advancement must be the rule in the future, as in the past, we need not be much surprised, to hear that a farmer had delivered an agricultural address at an agricultural fair.

If I had been led to believe that the subject assigned me was one of the most important of this course, I would be very properly charged with an attempt to make an acre look as large as quarter section, because I treat of the circumscribed area of the former as compared with the broad domain you call a western farm.

The seeming unimportance of my subject gains strength when we stop to consider that of all the important interests, that go to make a system of mixed farming successful, not one of them can stand alone, but each one must have the help of others, and I must claim for the farm garden that it has a very important place among the helpful factors.

I shall not in demanding rights for the garden combat any farm product, any more than to wrest from the grasp of the Minnesota monarch, No. 1 hard, a single acre and help to properly cultivate it.

Men work that they may live. It is a principle of human nature as strong as the love of life to rebel against unrequited toil; and farmers as a general rule, hate the garden, because they think it does not pay.

Dollars and cents enter largely into all plans for farm operations as well as commercial, and the farmer is as apt as any one to drop a venture in which there is apparently no profit.

In planning for the year's work, he lays out his fields in tracts to be devoted to spring crops.

In estimating the cost of production of these crops the average farmer is very apt to count strictly every item of hired help, machinery, etc., but to entirely ignore the cost of living.

If he kept this last account as carefully as he did the first, he would find that it bore a very discouraging relation to his profit account, and very nearly equaled all the others.

This is fast becoming a world of luxury in food as in all things else, and the habit is fast getting foothold among the tillers of the soil.

If you do not grow and preserve for use the finer vegetables and fruits, you are compelled to purchase them. Maine, Massachusetts, California, and other equally distant or foreign sources of supply, annually send hundreds and thousands of tons of canned fruit and vegetables to our state, and it is reasonable to suppose that farmers purchase at least one-half the importation. Such being the fact, and with the guarantee that if you faithfully persist in a system of intelligent farm gardening, you can save all this expenditure, and consume a better class of goods, you need not be surprised at the temerity of your horticultural friends who come here to do battle for the garden.

To begin with the vegetable department, your garden must be rich in the elements of plant growth. If not naturally so, you must spread on fertilizers with a liberal hand. Do not be afraid of getting it too rich. All the garden crops do better, in proportion, as the soil is made rich, even beans, reputed to grow on land too thin for any other crop, will do better on land capable of producing one hundred bushels of corn per acre.

Barnyard manure is not only the cheapest, but the best for all purposes. Having once established the fertility of your garden it must be maintained by liberal annual dressing.

Select the location convenient to the house, with southern or eastern exposure if possible. The best form is a paralellogram 10x16 rods or longer as you may desire. So arrange, that nearly all the cultivation can be done by horse power, by which I mean, put everything in rows which should run north and south, for proper distribution between the open rows of light and heat.

Cabbages will grow just as well in a row a hundred feet long, as in a space ten feet square and the same is true of everything else.

Get out of the old rut that impels you to plant beets, onions and like growing sorts in little raised beds. Put them in rows the whole length or width of your garden, and give them the same liberal flat culture that you find best for corn and cabbages.

ASPARAGUS.

Procure an ounce of seed and sow it in a carefully prepared space a little out of the way, so it will not be plowed up the next spring. Hoe and keep clean from weeds for two years. Then prepare the ground for the permnaent plantation by thoroughly enriching and deep plowing or spading. Set the two year old plants 18 to 24 inches apart each way. Plant the crown of the plant four inches below the surface, cultivate and each fall fork in an inch or two of well rotted manure, and the mystery of asparagus growing becomes a simple success.

Once established, as it will be in fair grass from the seed, it will annually throw up its abundance of rich healthful food product through all your time and your children's children can go and eat from the original plantation.

BEANS.

There is not much mystery about growing this plebean. Plant as soon as all danger from frost is past, in rows thirty inches apart and a foot apart in the row. Cultivate thoroughly if you want a good crop. It is a popular notion, that they must not be cultivated or disturbed when the vines are wet. This is based on the fact that disturbance at that time produces a rust on the leaves which materially shortens the yield.

For garden use it is a matter of taste whether you choose the green or wax pod sorts. Of the former the early Mohawk is the best for use as snaps, as it is the most productive of them all, and remains longest in a green state. For green shelled the early China red eye is one of the best, being nearly white at this stage of its growth, large and plump. Of the wax beans you will not be disappointed if you plant either the Black or Golden Wax. The latter perhaps the least objectionable on account of color. Both are stringless and of fine mild flavor when used as pods.

The above are of the popular dwarf or bush varieties, best suited for farm gardening.

Of the pole sorts the Horticultural pole and large Lima are very popular on account of their excellent quality green shelled.

In this latitude they should be planted in rich, quick soil, in a warm sunny place, and when the vines reach the top of a six foot pole, should be pinched back to hasten the development of the pods that are just setting low down on the vines. By this means you can produce an abundant supply of this semi-tropical luxury in Minnesota.

The green pods of the first named sorts are successfully canned and dried for winter use.

BEETS.

In this vegetable we have one that may be had as required for use twelve months in a year in a perfectly fresh state, which makes it a very important adjunct to our gardens.

Seed may be sown just as early in the spring as the ground will work well. If sown a little too thickly, the young plants may be pulled or thinned out as required for greens, or as a substitute for spinach, though many would put it the other way, and grow spinach as a substitute for young beets. They are usually boiled tops and all, and are fit to use in this state until the beets get to be an inch in diameter, when the final thinning must be done, leaving the plants from eight to twelve inches apart in the rows, which should be 24 inches apart. For best results in both quantity and quality of crops cultivate well. When gathered in the fall those designed for winter use may be stored in the cellar, packed in dry sand or sawdust, where they will keep in a perfectly fresh and crisp state until spring.

If you wish a few for spring or early summer use bury them in the fall in a trench below the frost line, and when the pit is opened the first of May, they will be found as good if not better than when buried the fall before.

For first use of the young growing crop, plant the Egyptian; it is the earliest of them all. and of very fine delicate flavor when young, but grows woody as it matures, and is inferior for winter use.

For general crop plant equal quantities of Long Dark Blood and Dewing's Turnip.

Both are good table sorts, and excellent keepers. The advantage of this vegetable over many others is that if you have a surplus at any time of the year it can be profitably fed to cows, and as a general rule there is never too many bushels of beets on any farm as they are very valuable stock food.

CABBAGE.

Probably the most extensively and universally grown of anything on our list.

It requires the best of land and the most persistent cultivation. It will make a fair crop with the ordinary weekly hoeing of the garden, but, if you are after big specimens for exhibition at the fair, see that the earth is stirred about it every day during its growing season.

As it is so universally grown, so is its culture generally understood.

For first early sorts some plan should be adopted to have the plants ready to set out in the ground as soon as it is fairly in working condition, either by growing them in boxes in the house, or in a hotbed. If grown in either place, too great importance cannot be attached to gradually hardening them by out door exposure, to enable them to stand the freezing they are sure to get if planted early, without injury. A plant directly from the hotbed or house, always having been kept warm, will be ruined by fifteen degrees of freezing, when if hardened by gradual exposure it would endure nearly twice that without injury.

The finest crop of early cabbage I ever grew was planted out in Southern Wisconsin the second week in March. After planting, a snow storm covered the plants, and the thermometer marked zero next morning. It gradually became warmer; the snow melted away from the plants, and all but about ten per cent. came out all right.

In hotbed planting it is a safe rule to plant the seed six weeks before you expect the ground will be ready to receive the plants; and this applies to hardy and tender plants alike, tomatoes being, perhaps, an exception, and may remain in hot bed 10 or 12 weeks.

For plants of winter, or late cabbage, plant the seed in the open ground in time to produce strong plants for planting out by the middle of June in this latitude

To prevent the bursting open of the heads in the fall, pull as soon as grown, and invert in a dry place; or if the weather is moderately dry, they may be pulled and placed roots up where they grew until time to store for the winter.

As a general rule you can easily keep all you want for winter use, by hanging up by the roots in the cellar, or setting them on a shelf.

To keep through the winter for spring use is quite another thing. The safest plan is to place them where they will freeze and remain frozen until the final thawing out in the spring. It matters little how you do this, if you bear in mind that the head must be kept inverted, to guard against the possibility of any water being retained in the leaves, and that it must freeze and thaw but once, and that when the frost is drawn, it must be while protected from exposure to the air.

I have kept them in perfect condition by setting them in a row, heads down, and covering with earth to the depth of eight inches.

For first early, plant Jersey Wakefield, or early York; for late. flat Dutch and Fottler's Brunswick. The latter is a second early, or medium late, and may be planted as late as the second week in July and make a good late crop.

CAULIFLOWER.

When well grown, is one of the finest vegetables that can grace a farmer's table, and is used very extensively, both cooked and pickled.

Same soil and treatment as you give the cabbage will answer for cauliflower. The only difficulty being in procuring seed of a strain that will produce good heading plants.

It is impatient of heat and dryness, and for this reason it is better for the farmer to grow the autumn heading or late sorts, planting them out at the time of planting winter cabbage.

To be successful, the plants must be got out so early as to mature before the summer drouth, or so late as to begin heading in the cool of September and October.

Of the early sorts, the snowball and extra early Erfurt are the best, and Lenormand's short stem the safest late to plant.

CARROT.

Questionable whether this vegetable has a place here; but as it is often cooked, or used in soups, it must have a little attention, especially as your horses will thank you for any surplus you may have on hand.

Plant very early in spring; thin to 8 inches, in rows 24 inches apart, and keep from insects.

Easily keep fresh through the winter by packing, or burying same as described for beets.

For table use the early Scarlet Horn is the best; while for stock purposes the honors are pretty evenly divided between Danver's half long and long orange.

CELERY.

Here we have a plant—a royal good one, too; healthful, easily grown; but farmers are so mystified by the pretended great skill required to grow it, that it is seldom attempted, and almost unknown on the farm table.

Sow the seed, out doors, in a carefully prepared seed bed, cover very lightly or not at all; a packing down of the bed, with the back of the spade after the seed is sown, being sufficient. Water liberally, and keep free from weeds. As soon as the plants are an inch or two high, I take them out of the seed bed, pinch off all the tops, and transplant right back, into the same bed, as thickly as can be done. This transplanting, causes a mass of fibrous roots to grow, so that when finally planted out, where they are to grow, they are better able to stand the dry weather, that usually occurs in Minnesota at the proper time for doing this work, which is from the middle to the last of July.

Select the richest part of your garden, lay out rows four feet apart, and set the plants as you would any other, about six inches apart in the row, cultivate thoroughly, but do not disturb while the plants are wet with dew or rain. When the plants are six or eight inches high, say the latter part of August, begin earthing up, by first holding the stems together with the hand, while earth is drawn around them, sufficient to keep them in an upright position. About once a week after this, throw more earth about the plants, gradually approaching the top, which you must reach by the time freezing weather sets in. This earthing is done to blanch, or whiten the stalks, and renders them tender and fit for table use. If you prefer, you need only earth up a few stalks for early fall and winter use, the majority of the crop may grow on without any earthing but the first handling, and be blanched in boxes in the cellar during winter as wanted.

Any box a foot wide, and of a depth equal to the height of the plants, answers for the cellar work. Take up the plants with the earth still adhering to the roots, and pack upright in the box, as closely as you can. Keep them at a temperature a little above freezing, and you can have celery fit for the table, until spring.

The dwarf growing sort, Sandringham, or American white solid, are always good and reliable.

CUCUMBERS.

So easily grown that no directions need be given. The striped bug seems about the only difficulty any one ever encountered in growing them. By watching the young plants, and daily dusting them with anything that will frighten the bugs away until the plants have made their rough leaves, and the danger is over. For years I was in the habit of dusting the plants with gypsum, ashes, soot, or anything I could find recommended. I finally began gathering up handfuls of dry earth from about the plants, and throwing it quickly over them. The bugs would begin to run about, take wing, and were gone for the day.

For the last six years I have used no other application to rid cucumber and squash vines of the striped bug, but dry earth. As with all other remedies it must be persistently used, and no matter how expensive, or hugely advertised any remedy may be, you will always find that "eternal vigilance is the price of" cucumbers.

SWEET CORN.

King corn presents, in the table varieties, a very desirable garden crop. I shall only tell you the sort to plant. It is highly important that a succession be kept up from the time of the first roasting ears until frost

By planting the following varieties, on the same day, you will not be without food table corn a single day from first until frost. They are named in order of earliness:

Early Minnesota, Crosby's Early, Moore's Concord, and Stowell's or Burr's Evergreen.

The Black Mexican excels them all for quality, but its tendency to mix with all other sorts on the farm will keep it from becoming popular.

LETTUCE.

Always esteemed as an early spring salad, and easily grown, but there is a great difference in the quality of that properly and improperly grown. Give it the best of soil, sow the seeds thinly so that you will not have the plants closer than six inches, hoe carefully to stimulate rapid growth, and you will be surprised at the results, as compared with the self-same crowded, uncultivated product.

Of all the sorts, I consider the Crisle Simpson white-seeded the best for ordinary culture.

ONIONS.

The only secret about growing them successfully from seed is to have a very rich and rather light soil, and plant just as early as you can possibly work it.

Weeds must be kept down, and the culture must be done shallow, that is the soil must not be stirred deeper than half an inch, if possible. All the fining, pulverising, or mellowing the soil must be done before planting.

For first early, it is best to preserve a few quarts of top or bottom sets, planting them out as easily as possible. It is a difficult crop to preserve in any great quantity in the cellar.

A bushel or two, laid thinly on a shelf, and scattered over a pile of potatoes, will keep fairly well; but as soon as you attempt to bin or level them in a warm cellar, they soon assert their strength, perfume the whole house, and rot before spring.

A number of years ago, having a large lot on hand, selected for seed stock, and having no proper storage room for them, I took the advice of the books, and let them freeze up solid and remain so until spring. They came out all right; and I have pursued this plan ever since. A year ago last fall the manager of the State Reform School farm had above 300 bushels of onions on hand that he wished to keep for seed stock. I advised him to pile them in long, winrows, and cover with about four inches of earth; and he finally, with much misgiving, placed two hundred bushels in this manner; and remarking that he would save a hundred bushels anyway, he put them in his well-constructed root cellar.

You all know what the winter of '80 and '81 was; long, steady cold, with the thermometer down among the thirties for days. The result was that the two hundred bushels frozen came out all sound in the spring, while of the hundred bushels kept in the root house not twenty bushels were fit to plant out in the spring.

Some of the best authorities in our country in their published writings tell us that the onion will not stand thirty degrees of freezing, without positive injury. The case just quoted as positively proves the contrary. The only care to be taken in subjecting onions to very severe freezing is, that they be *not* allowed to thaw but once, and that without removal, and still covered with earth, and at the final thawing out in the spring. Onion setts, so difficult to keep in good condition in any quantity during the winter, may be safely treated in the same manner.

PARSNIPS.

Better plant a few rows of Hollow crowned parsnips. They are fit for use as soon as grown in the fall.

A few may be dug, repacked in sand in the cellar for winter use, and the remainder left out of doors where they grew to be eagerly sought for and dug as soon as the frost is out in the spring.

Salsify is of similar habit and power of enduring cold, and may be used, stored and dug in the spring, for spring use, same as the parsnip.

It is a delicious, very wholesome diet, and very popular with many.

In preparing it for the table, cut in short pieces, and treat same as green peas.

When once you begin using it, you will probably continue.

The only danger in leaving those sorts out during winter arises from their being planted where water will stand, or being so located as to freeze and thaw several times during the winter.

In either condition, the roots rot in the ground.

PEAS.

Not one half are usually grown on the farm as they should be, of the simplest culture and the easiest growth.

Of these you want a succession also, and if you do not wish to be bothered with planting the same sorts, at different times, you may keep up the desired succession, by proper selection of early and late sorts.

For this I would recommend, four sorts, as follows: Philadelphia Extra Early, Little Gem, Yorkshire Hero, and Champion of England.

With this selection, planted at the same time, there will hardly be a break in the supply, from the time the first Philadelphias are ready, until the last of the Champions, which will take you through about all the length of season you can expect green peas in this latitude.

RADISHES.

Always popular in their season, if well grown, but oftener unfit for the table, because of the soil in which planted. It is a common mistake to lay all failure to produce crisp, tender roots to the seed planted. But little radish seed that will grow at all, is sold, but will produce the finest results under proper culture.

You have only to be sure the seed is sown in very rich, light, warm or quick soil, to be as equally sure of the very best product.

SPINACH.

As easily grown as beets, and a very fine green, healthful, and relished by nearly every one. A half pound of seed — costing twenty cents — sown at intervals from early spring, until you tire of it, will supply a large family.

SQUASH.

Productive, in a large degree, of excellent, nutritious food for man and beast, you need not fear an overstock of this vegetable. As it is tropical in its nature, nothing is gained by very early planting, as they will absolutely refuse to make any headway, until the ground is warmed by the sun of summer.

I have grown as good crops of Hubbards, planted the first week in June, as I ever did by early planting. They are strong feeders, requiring the best of soil, and liberal culture, until the vines begin to run, when they should be let alone until harvesting time.

In gathering — for winter storage — handle carefully, so as not to bruise them, let them lie in piles in an open shed, to cure, until danger of freezing, when they should be placed on shelves, in a cool corner of the cellar.

The Hubbard still holds the first place — as a winter keeper — and its quality is unexcelled.

For earlier fall use, or early winter, you may prefer the Boston marrow, a soft shelled variety, of good quality, very productive, and excellent for stock.

TOMATO.

With this, perhaps the most valuable of all our list, I will close this dry detail. The plants should be started early, so as to be big and strong by planting-out time, about the middle of May.

The amatuer, may, by pruning, and training, accomplish wonderful results, with this vegetable. A friend of mine in St. Paul, from half a dozen plants, trained against the south side of a six foot board fence, managed to cover the entire fence with fruit bearing vines, that supplied an abundance through the season.

One of the most interesting experiments I ever made in tomato-culture, was to train a hundred plants to four foot stakes. The plants were pruned to a single stem, which was tied to the stake as it advanced in growth, and pinched back as often as it got beyond the top of the stake.

The fruit grew in great clusters, every one perfect in form and color. It was a beautiful sight, and I think the crop fully equalled in quality that where a dozen vines were allowed to spread over the ground from one plant, and the fruit was certainly finer.

In all management of this plant, it pays to devise some means to keep the vines up a little from the ground.

Preservation of the different vegetables for use beyond their season, is an important item. Beets, in the manner described may be kept in a fresh state as long as wanted.

Cabbages may be had — fresh — for eight months of the year, and we will try and get along with Sauer Kraut the balance of the time.

Celery must be kept in a natural state, as it is not possible to preserve it in any other way.

Carrots are used only in the natural state.

Cauliflower cannot be kept fresh — for any length of time — and is usually pickled for preservation.

Sweet corn, may be both dried and canned, and in either condition preserves its natural flavor excellently.

Cucumbers are only used green or pickled.

Onions may be had fresh the year around.

Peas — fresh and canned — as the secret of canning these things successfully is fast finding way into farmers' kitchens.

Squashes, may be dried, either after cooking, or sliced, in the good old New England way of treating pumpkins, and an excellent material for pies.

Tomatoes, both canned and dried, already enter largely into the winter store of farm housewives.

Currants, raspberries, and strawberries, all — canned and dried — may readily take the place of all other dried fruits on a farm table.

Having discussed soil, and varieties, it will not be out of place to talk about the seeds you plant. It is a lamentable fact, though much to the profit of the seedmen, that farmers are too careless of selecting and saving seeds. Once engaged in this work, it not only becomes profitable but of the deepest interest.

The mysteries of fertilization and hybridization of plants, by which different sorts of the same species are mixed, and new, and better or worse varieties the result, forms one of the most interesting studies of vegetable life.

From this fact, we derive discouragement to the farmer, who attempts to grow seed from his own planting, because of the small area of the garden, and the difficulty in maintaining the requisite isolation of different sorts, to insure purity of seed.

He must plant more than one sort of sweet corn, in order to keep up a succession of product, fit for table use.

The early Minnesota, growing upon one side of his garden, the Black Mexican upon the other.

During the season, he selects a few of the best hills of Early Minnesota, to reserve for seed, and selects carefully — as he ought — the most perfect ears for next season's planting.

The following summer our gardner is disgusted to find that he is growing a mongrel corn, the white ears of the early Minnesota being spotted with the Black Mexican.

He did not think, that the almost impalpable dust that the wind took from the top or tassel of the black corn, and wafted across the garden and fell upon the silk of his pet early Minnesota, would work this change, but he learns it by experience.

Every grain upon an ear of maize, is supposed to be in communication with one of the thread like silks, that force their way — in a bundle — through the husk at the end of the ear.

Destroy that silk, or cover it with oiled paper, before it has any possible chance to be fertilized by the pollen from the top of the stalk, and the cob will be barren of grains.

The same principle then, that fertilizes the ear, and enables nature to produce the grain, will be found at work "mixing the children up."

We may be particularly impressed with the value of the Hubbard squash, and allow none other on our grounds. A neighbor half a mile away will grow nothing but the Boston marrow.

You do not let this little whim of his worry you, but proceed to select your perfect type of Hubbard squash, to furnish seed for the next season.

When the product is grown, you cannot account for the yellow streaks on green Hubbards. or for their inferior quality.

It happened in this way. Some enterprising bumblebee was out foraging one day when your squash vines were in bloom.

He stopped at your neighbor's, dipped down into the Boston Marrow blossoms, and covered himself with their pollen. On his way home he passes over your grounds, thinks he has hardly load enough, and tumbles down into the very bloom, that produces your pet seed Hubbard squash.

The mischief is done, the bee not only takes from this bloom, but leaves a little of the yellow powder on the pistils of the flower, fertilization is complete, and a hybrid the result.

Such results as these, while provoking in such cases, are often of great value, in producing new and superior sorts. All our new varieties of corn, peas, melons, squashes, tomatoes, &c., are produced in this way, and many of them are better than the original varieties.

I do not wish to discourage the careful selection and sowing of seeds.

You may begin with the meanest specimen of field corn you ever grew, and by fixing your mind on a type you wish to produce, and selecting seed persistently that approaches that type, you can in a very few years produce a pedigree corn, so firmly established as a variety, that like will produce like, and you have a new sort, entirely unlike the parent.

The same is true of all the vegetables from which you can save seed. Take the tomato as an example. By selecting the first ripening fruit, and that of the most perfect form, you can have seed for your own planting, better than you can purchase of any seedsman.

Get your boys interested in this work of improving old sorts, and producing new ones, and you have done much towards making them satisfied that farm life is the best condition of man in the world.

As soon as a man or boy becomes interested in the mysteries of Nature, begins to study her wonderful plans and resources, he becomes morally better.

Learn your boys all you can of these things.

Call their attention to facts, that set them to thinking. Illustrate by familiar surroundings.

An oak tree, spreading its top over a circumference of thirty or fifty feet, bears all the rain or dewfall far away from its trunk, and and at first you think that tree would suffer greatly for water. When you stop to think, you are reminded that the great gnarled roots near the trunk have no capacity to drink in the water, but away around the line, just where the foliage sheds the water, are thousands of little rootlets, ready and capable of drawing life from the water, and sending it coursing up the trunk, through millions of cells, reaching the topmost leaf.

The tropical sunflower, thriving best with a limited supply of water, has its roots all in a close bunch, and the leaves are so arranged that the water from rain and dew is carried far from the reach of the rootlets.

The cabbage — with much the same habit of root but requiring much moisture — has its leaves so arranged that every drop of water that falls upon the leaves is carried toward the center of the plant and deposited right at the roots.

To return to the farm garden proper it is not complete with vegetables alone.

You must have grapes, raspberries, currants, and strawberries in abundance. There is no place in the Northwest, where wheat will grow that you cannot grow the small fruits easily and cheaply.

In the absence of apples, pears and peaches there is the greater incentive to grow the small fruits. These have all been or will be discussed at this meeting, under their proper heads. In our garden talk, if we succeed in interesting the farmers in the work, enough has been accomplished; their intelligence seconded by numberless papers and books will take care of all the details.

We of the farm do not appreciate our condition.

To grow grains, vegetables, fruits and flowers, is to occupy the only perfectly independent position in the world. Your time is your own, and you call no man master.

You are envied for this by the dweller in the city; and your table is eagerly sought, because the things there smack of mother earth, and your surroundings are those of Nature.

No one but the grower, or his guests, knows of the dewy freshness of fruits and vegetables right from his garden.

That is a part of the reward for labor, and there is not only satisfaction in it, but health and life.

If any man should secure the fullest extent of reward for labor, it is the tiller of the soil, and if any man does secure such reward it is the cultivator who makes the best use of soil, and climatic conditions that go to make up his surroundings.

Nature, in the indulgent kindness of her good heart, showering her choicest gifts upon the man who appreciates her enough to intelligently and industriously second her magnificent efforts to make this a world of plenty.

The Farmers' lecture course Friday, the closing day of the season, was occupied mainly with matters relating to fruit and fruit culture, though a digression was made to include the birds of Minnesota. The attendance was fully up to the average. The first paper of the day was by George P. Peffer, vice-president of the Wisconsin State Horticultural Society on

FRUIT CULTURE OF THE NORTHWEST.

The speaker pleasantly reviewed the history of fruit growing in Wisconsin in the early days, and then said: Where the summer temperature is ninety or ninety-six degrees, and that of winter forty to sixty degrees below zero, fruit culture has to be learned or made a study of if it succeeds. Fruit cannot be raised on a southern exposure, as it will be too hot, the foliage will burn, and rust, mildew and blight will ensue. It cannot be raised in low places or ravines as the cold settles there, and the soil is too rich for trees. All fruits grow best on high clay or limestone soils, naturally underdrained sloping to the east or northeast. The cultivation should not stimulate overgrowth. Fruits that can be protected in winter such as berries, currants, grapes, &c., are safe to plant, as are also trees which have proved hardy in similar localities. Such are trees of the Siberian crab, and of the Astrachanica families, or hybrids from either; the last named are the ones that Minnesota and adjoining states will yet have to look to for their supply of apples. These hybrids are acclimated by reproducing from seed, and every generation can be grown a degree further north, and get used to its climate. The seeds should be raised as far north as possible, wherever, there is a good and loose subsoil. The main root is a very long one, and the fibrous roots near the surface but few, hence where ground freezes from two to four feet deep,

A LOOSE, GOOD SUBSOIL

is necessary to promote the deep growth of the tap root below frost where it can gather moisture through the winter. To raise a tree from the seed, prepare the ground thoroughly early in the spring, and cover the seed half or three-quarters of an inch deep. The root or sprout starts first, and is supported by the starch in the dormant leaves that shield the bud until it sends out firm, fibrous rootlets, and a supply of earth food is obtained to feed the plantlet until its leafage is sufficiently expanded to enable it to draw on the atmosphere for support. The plant is at this time but a single bud, and all its energy is given to the formation of its first leaves. As soon as their leaves are opened a new bud appears in their axil and another extension is provided for; and so on to the end of the season. Some of these buds may be removed, and if placed under favorable circumstances will grow and make a new tree the same as the seedling tree itself. The individual life principle resides in each bud. Here then in a tree we have a community made up of as many individuals as there are buds, and supplied with an immense apparatus for absorption in common by which earth food is taken up; the whole to be digested in the innumerable cells of the inner bark.

THE STRUCTURE IS IN OUR HANDS

to be treated intelligently. In order that it may withstand the hot sun in a southern exposure, it must be protected by the growth of the limbs, which should be near the ground. To accomplish this, pinch back the leader thus throwing more sap into the side branches. Keep the head well balanced by pinching back the side limbs if necessary. If one branch gets much the start of another it is very apt to absorb so much of the sap as to practically starve the shorter one. This must be guarded against. Trees from a nursery can hardly be as hardy as trees raised from seed, for they receive a check in the removal, and the body will suffer more or less, sometimes to the extent of entirely losing vitality and dying. Let the young tree have as many branches and leaves as it will, for the tendency to fire blight will be thus partly avoided. Fire blight is caused by an over supply of sap when the weather is very hot, and unless there are plenty of leaves to aid in its digestion, fermentation sets in and then decay follows.

The hybrids from the Siberian and Russian crabs have an unusually thick leaf and are not so liable to blight as some other varieties, and they will probably prove to be the

DESIRED HARDY APPLE OF THE NORTHWEST.

One great trouble encountered in raising seed, especially in mixed orchards, is the extreme liability of any variety to be fertilized by another, making it well nigh impossible to tell what kind of fruit the seed saved will raise. It may even happen that no two seeds from the same fruit will bear fruit alike; apples and hybrid crabs have often come from the seeds of the same apple. To raise trees of a hardy and constant variety, foreign pollen must be guarded against. This is done by enclosing the flower in a paper bag or glass jar or anything else which will not interfere with its fertilizing itself with its own pollen. In this way the same variety may be propagated generation after generation. To cross breed or hybridize remove the pollen by hand before the flowers open, and then enclose the flower, in a sack or jar until the foreign pollen that is to be used for fertilizing is ripe; then cut off a spur of the perfect flowers and place it in the jar with the flowers first operated upon, and shake the tree enough to cause the pollen to fall; leave the jar on the flowers until they wilt. Then there is nothing more to do except to label the new variety.

THE FRUIT FROM CROSS-BRED SEEDS

will resemble the male parent most closely, but the growth and hardiness of the tree will be more like the female parent. The male gives quality, texture, and somewhat of size to the new seedling fruit, the female gives the form and very often the color. By bearing these facts in mind, almost any one can raise fruit according to his taste, and with perfect success. If a peculiar quality of fruit is desired, use crabs for the female parent and pollen from almost any of the hardiest apple blossoms, such as the Wealthy or Walbridge. By following these directions, Minnesota farmers can soon have the finest varieties of hardy apples in quantities sufficient for home use and for shipment to foreign markets.

Following Mr. Peffer's paper, E. E. Harris, of Sheldon, read a paper on

"The Birds of Minnesota."

This beautiful land of "laughing waters and golden sheaves" would be monotonous indeed were it not for the companionship of its sweet feathered songsters, which, though lacking somewhat in the dazzling brilliancy of plumage possessed by those of a more sunny clime, are nowhere excelled in sweetness of voice and sprightliness of manners. Our forests, fields and groves are at no season of the year entirely destitute of the presence of these winged citizens of the air. But few species seem fitted by nature to adapt themselves to all the climatic variations of our northern home. Therefore most of the summer residents do not remain to share with us the inhospitalities of our rigorous winters. As soon as the chilling frosts have robbed the foliage of its verdure, numerous visitors come to enliven the dreary woods, and in a measure, cheer the weary days of the reign of desolation.

That birds are a blessing and benefit to the agriculturist, no one will dispute. The *Creator*, who has made nothing in vain, seems to have given them, in their relations to the human race, a double duty to perform: to cheer our hearts when we are sad, to stimulate us to renewed exertions when discouraged, and to destroy and keep within bounds the many hundreds of different varieties of destructive insects, which infest the land. Insects are, as a general rule, very prolific, a single individual being known to lay several thousand eggs during its brief life of but a few days. What then would be the result if each of these eggs was allowed to go through its various transformations and become a perfect representative of its species and in turn reproduce at this astonishing rate? Is it not safe to affirm that if allowed unrestrained liberty in procreation these seemingly worthless creatures would soon increase to such prodigious numbers as to defy the husbandman in his efforts to cultivate the soil and gain a livelihood by the noblest and most independent of all vocations, agriculture?

To whom are we indebted for the prevention of the unlimited increase of those noxious vermin? No doubt there are several causes which tend to keep them within reasonable limits, chief among which is the birds. In my opinion if all the birds were taken from the earth and the insects allowed full sway, in a short time all vegetation would be destroyed, and consequently animal life would become extinct, and this beautiful world would be transformed from a paradise of surpassing loveliness into a gloomy and uninhabited desert.

Who can tell then, to what extent we are indebted to the birds for their indispensable services? But leaving out the vast amount of good they do the agriculturist, in ridding the earth of injurious insects, do they not more than repay him for the small percentage of his productions which they appropriate, by their sweet companionship? Whose heart has not been touched, whose life has not been made better by listening to the tender and elevating strains of the sweet songster as he sits upon his lofty perch pouring out the gratitude of his sinless heart in a profusion of song, and causing the hills and valleys to reverberate with the sound of his joyful melody.

THE RAPTORES, OR BIRDS OF PREY.

The most prominent characteristics of this order are a stout compact form, long powerful wings, and strong sharp claws. They feed upon birds, small animals, snakes, etc., and some of the smaller varieties destroy great quantities of beetles.

THE RED-TAILED OR HEN HAWK.

is one of the most common of our rapacious birds. Who has not seen his familiar form circling through the air, eagerly scanning the earth for some helpless victim, and uttering at frequent intervals his disagreeable cry which might be translated, "Woe unto the helpless bird that falls into my merciless clutches."

The Red-tailed Hawk is very destructive to poultry and game, and fully merits the dislike with which he is looked upon by all. At the sound of his discordant voice the hens scatter and run for cover, the nimble hare seeks his hole, and all nature seems to look upon his coming with disapprobation. The nest of this bird is generally placed in the top of a lofty tree, and is composed of large sticks and brush. The eggs which are usually three in number are of a dull white color, with numerous spots of light brown, and as large as a good sized hen's egg. The young may be easily reared from the nest if taken when nearly ready to fly, but do not make desirable pets.

THE SPARROW HAWK

the handsomest representative of his family is frequently met with.

The following description of the habits of this interesting little fellow, is taken from Wilson, "The habits and manners of this bird are well known. It flies rather irregularly, occasionally suspending itself in the air, hovering over a particular spot for a minute or two, and then shooting off in another direction. It perches on the top of a dead tree or pole, in the middle of a field or meadow, and as it alights shuts its long wings so suddenly that they seem instantly to disappear, it sits here in an almost perpendicular position, sometimes for an hour at a time, frequently jerking its tail, and reconnoitering the ground below, in every direction for mice, lizzards, etc.

It approaches the farmhouse, particularly in the morning, skulking about the barnyard for mice or young chickens. It frequently plunges into a thicket after small birds, as if by random, but always with a particular and generally fatal aim."

The nest of the Sparrow-Hawk is usually in a hollow tree, and sometimes a deserted Wood-pecker's hole is made use of. Several other varieties of Hawks are found in the State, the Cooper Sharp-shinned and Pigeon-Hawks are common.

THE FAMILY STRIGIDÆ, OR OWLS,

is well represented in our State. Body short and heavy, head very large and in some species furnished with erectile tufts of feathers. These tufts or egrettes are by some erroneously supposed to be their ears, which are simply holes in the head concealed by the feathers. Eyes very large and placed far in front, best fitted for seeing in the dark or twilight. Feathers very dense and extending to the toes.

THE GREAT HORNED OWL

is one of the largest and best known of this interesting family. He is a great lover of poultry, and his strong noiseless flight enables him to pounce upon the unsuspecting fowl and bear it to his lofty nest with perfect ease. I once took a pair of young ones from a nest and kept them two or three years. They make interesting pets. When food is placed in their cage they instantly pounce upon it, and standing on it with both feet tear off large pieces with the bill which they force down their throats, at the same time making the most hideous faces imaginable. I have seen one swallow a good sized rat without tearing it in pieces. They have a peculiar habit of rolling their eyes and snapping their bills when approached by a stranger.

The nest from which I obtained these two was built the preceding season by a pair of Red-tailed Hawks, which proves that this bird sometimes makes use of an abandoned nest, but it does not always do so. The eggs are usually three or four in number, of a yellowish white color, nearly round and about two by two and one-fourth inches in size.

THE SNOWY OWL

frequently visits us in the fall and winter but does breed in the State, its home being in the desolate North. Hence the habits of this handsome bird are not so familiar to us as the other varieties mentioned.

THE BARRED OWL

is quite plenty. He is probably the most uncouth representative of the family. His form is awkward, plumage dull, and eyes dark and expressionless, but better fitted for seeing in daylight than those of the other varieties. Hence he is often met flying about in the woods in the daytime.

THE BEAUTIFUL LITTLE MOTTLED OWL

is quite frequently met with. He is quite familiar and is generally found near the farm house or orchard. They feed upon birds and mice, rejecting feathers and bones, they also consume great numbers of beetles and nocturnal moths. The notes of this owl resemble the whine of a dog, uttered in a tremulous, doleful voice. The nest is a hollow tree, in which the young remain until able to shift for themselves. The diminutive Saw-whet Owl is less common in our locality than any of the above mentioned varieties. He is is strictly nocturnal in habits, and though extremely active, is so stupid in daylight as to be often caught with the hand; although considerable caution is necessary to do this, as he is a little like the Irishman's flea, "when you put your finger on him he an't there."

The Picidæ or Wood-peckers are particularly beneficial to the horticulturist on account of the vast number of hurtful insects which they destroy.

The different varieties closely resemble each other in form and habits.

The Pileated Wood-pecker is the largest variety found in the State, and is quite scarce in most localities. His great strength and enormous bill enable this bird to chisel into the decaying trees, in search of food with astonishing ease and rapidity. Every tree near his habitation bears the marks of his untiring zeal in hunting out the hurtful borers found beneath the surface, which form the principal part of his diet.

The Golden-winged Wood-pecker is widely and plentifully distributed throughout the State. The following sketch is from Audubon.

"Their note is merriment itself, as it imitates a prolonged and jovial laugh, heard at a considerable distance. Several males pursue a female, reach her, and, to prove the force and truth of their love, bow their heads spread their tails, and move sidewise, backwards and forwards, performing such antics as might induce anyone witnessing them, if not of a most morose temper, to join his laugh to theirs. The female flies to another tree, where she is closely followed by one, two, or even half a dozen of these gay suitors, and where again the same ceremonies are gone through. No fightings occur, no jealousies seem to exist among these beaux, until a marked preference is shown to some individual, when the rejected proceed in search of another female.

In this manner, all the Golden-winged Wood-peckers are soon happily mated. Each pair immediately proceed to excavate the trunk of a tree, and finish a hole in it sufficient to contain themselves and their young. They both work with great energy and apparent pleasure. Should the male, for instance, be employed, the female is close to him, and congratulates him on the removal of every chip which his bill sends through the air. While he rests he appears to be speaking to her on the most tender subjects. In this manner, by alternate exertions of each, the hole is dug and finished.

The Red-headed Wood-pecker is quite common, but is not so well liked as the other varieties on account of his fondness for fruit. But let us not judge too severely of him, if he occasionally helps himself to a few of our choicest apples without saying "if you please," for has he not labored persistently to rid our trees of noxious vermin? Is it not right then that he should come in for a small share of the dainties which he has helped to produce? Let us rather thank him for his assistance in overcoming the many difficulties which nature seems to have put in the way of successful fruit culture in this latitude.

THE GAME BIRDS OF MINNESOTA,

though formerly very numerous, are yearly getting scarce. The Hawks, Owls, Wild Cats and Foxes, wage their unceasing warfare, and are amply assisted by the hunters, who are getting more numerous than the game.

THE PARTRIDGE,

too well known to need any description, is one of the finest flavored of our game birds. The peculiar drumming sound, produced by beating with the wings upon his body or a log is familiar. The nest of this bird is of a rather loose construction, consisting of a few leaves and twigs, placed upon the ground in some secluded spot, where the female lays from six to one dozen eggs, of a yellowish white color. The young, like those of the domestic fowls, are able to run about almost as soon as they leave the egg. They also have the happy faculty of concealing themselves in the leaves or grass on the near approach of an intruder. The food of the partridge, like all the gallinaceous birds, consists of seeds, small fruit and insects.

In severe weather this bird is known to pass the night under the snow, which affords a warm protection from chilling winds and biting frost.

The quail is still found in some localities, but its numerous enemies and severe winters have so greatly reduced their numbers, that in places where a few years ago the familiar "Bob White" was often heard, it is now unknown.

PRAIRIE CHICKENS

still abound in vast numbers in the interior and western parts of the State, but so persistently does the hunter pursue his so-called sport, that this interesting bird will soon like the poor Indian "read its doom in the setting sun."

When the sultry heat of summer gives place to the cool and invigorating autumn, the ducks, geese and brants congregate in the ponds and lakes in immense numbers, and but a few days in the rear comes the indefatigable "Nimrod," who has recovered from the effects of his "chicken shoot" and begins to feel the need of more sport. He comes loaded down with ammunition, whips and whistles, and accompanied by his faithful dog. He slowly wends his way to the shore of some secluded lake, poising upon his shoulder the characteristic "pistol-gripped, rebounding-locked, choke-bored, center-fire, laminated-barreled, breech-loader, and choosing the most favorable position, this model of patience and cruelty awaits the coming sport. Should he have chosen a good locality he will not have long to wait. The favorite Mallard is there, his beautiful green neck surrounded with its snow-white collar, and is easily identified as the original of our domestic Mallard. Another very handsome bird, with a black and white top-knot, we recognize as the Hooded Merganser.

The Shovelers or Spoon-bills are particularly noticeable on account of their enormous mandibles. The beautiful Golden-eye or Whistle-wing is often seen, but his rapid flight and shyness makes this interesting bird difficult to shoot. Blue and Green-winged Teel are plenty. The Canvas-back, Butter-ball, Scamp-Widgeon, etc., are frequently met with. But by far the handsomest and most interesting of our ducks is the Wood or Summer Duck. This variety is easily domesticated and breeds in confinement.

The Robin is very common and plentifully distributed throughout the United States. His habits are pretty well known, on account of his familarity with man. The nest is generally built near a house, often in the garden or orchard. The Robin though very unpopular with some horticulturists, is really one of the most beneficial birds we have, as its food consists mainly of insects, and its appetite seems very voracious. The cut-worm well known as a very destructive grub, is devoured in immense numbers by this early riser.

The following experiment by Prof. Treadwell, illustrates the feeding habits of this bird much better than anything I could produce.

"Two Robins were caught when quite young, their tail feathers being less than an inch long and the weight of each about twenty-five pennyweights, less than half the weight of the full grown birds; both were plump and vigorous, and had evidently been very recently turned out of the nest. He began feeding them with earth-worms, giving three to each bird that night. The second day he gave them ten worms each, which they ate ravenously. Thinking this beyond what their parents could naturally supply them with, he limited them to this allowance. On the third day, he gave them eight worms each in the forenoon, but in the afternoon he found one becoming feeble, and it soon lost its strength, refused food, and died. On opening it he found the proventriculous gizzard and intestines entirely empty, and concluded therefore that it died from want of sufficient food; the effect of the hunger being increased perhaps by the cold, as the thermometer was about sixty degrees.

The other bird, still vigorous, he put in a warmer place, and increased its food, giving it the third day fifteen worms, on the fourth day twenty-four, on the fifth twenty-five, on the sixth thirty, and on the seventh thirty-one worms! They seemed insufficient and the bird seemed to be losing plumpness and weight. He began to weigh both the bird and its food, and the results were given in tabular form.

On the fifteenth day he tried a small quantity of raw meat, and finding it readily eaten, increased it gradually, to the exclusion of worms. With it the bird ate a large quantity of gravel and drank freely after eating. By the table, it appears that though the food was increased to forty worms weighing twenty pennyweights, on the eleventh day the weight of the bird rather fell off, and it was not until the fourteenth day when he ate sixty-eight worms or, thirty-four pennyweights, that he began to increase. On this day the weight of the bird was twenty-four pennyweights, he therefore ate forty-one per cent. more than his own weight in twelve hours, weighing after it, twenty-nine penny weights, or fifteen per cent. less than the food he had eaten in that time. The length of these worms if laid end to end, would be about fourteen feet, or ten times the length of the intestines.

This presents a wonderful contrast with the amount of food required by the cold blooded vertebrates, fishes and reptiles, many of which can live for months without food; and also with that required by mammalia. Man at this rate, would eat about seventy pounds of flesh a day, and drink about five or six gallons of water.

The question immediately presents itself, how can this immense amount of food, required by the young birds be supplied by the parents? Suppose a pair of robins with the usual number of four young ones. These would require, according to the consumption of this bird, two hundred and fifty worms, or their equivalent in insect or other food, daily. Suppose the parents to work ten hours or six hundred minutes to procure this supply, this would be a worm to every two and two-fifths minutes, or each parent must procure a worm or its equivalent in less than five minutes during ten hours in addition to the food required for its own support.

THE BROWN THRUSH.

This distinguished songster is a great favorite with all. During the breeding season his loud, clear notes are heard at all hours, but particularly at the dawn of morning and the still evening twilight. This bird is suppposed by many to imitate the songs of other birds; hence, he is often called mocking bird. This, however, is not the case as his various notes are all original. The nest is usually placed upon the ground, though often it is found in a small bush or small tree. Two broods are raised in a season. Like the birds that build on or near the ground, he shows great anxiety for the safety of the young, and fiercely attacks every intruder on his precious domains. His food consists of berries, worms, caterpillars and beetles, and he is very beneficial to the agriculturist on account of the great number of cutworms and other destructive species which he destroys, and for every bit of fruit which he takes repays a hundred fold. Wilson thus appropriately speaks of him. "The Thrasher is a welcome visitant in spring, to every lover of rural scenery and rural song. In the months of April and May, when our woods, hedge rows, orchards and cherry trees are one profusion of blossoms; when every object around conveys the sweet sensations of joy and Heaven's abundance, is, as it were, showering round us, the grateful heart beats in unison with the varying and elevated strains of this excellent bird, we listen to its notes with a kind of devotional ecstacy, as a morning hymn to the great and most adorable Creator of all. The human being, who, amidst such scenes, and in such seasons of rural serenity and delight, can pass them with cold indifference, and even contempt, I sincerely pity; for abject must that heart be, and callous those feelings, and depraved that taste, which neither the charms of nature, nor the melody of innocence, nor the voice of gratitude or devotion can reach. By the latter part of September or the first of October, the Brown Thrush departs for the south and passes the winter in the West Indies and Mexico."

THE BLUEBIRD IS A GENERAL favorite, on account of its social disposition, and well-known insectiverous habits. This bird is one of the earliest in its arrival from the south, often making its appearance before the snow has wholly gone.

The Bluebird seems to enjoy the society of man, hence its nest is often found near his dwelling, and quite frequently a knot-hole in a building is made use of. A hollow stump or fence post also makes a comfortable nesting place. Two broods are usually raised in a season, and the quantity of food which a family will consume is enormous. When we consider that this food consists almost entirely of insects which are injurious to vegetation, we must rank this bird among the most beneficial. Its song is a soft pleasing warble very agreeable to the ear, particularly in the early spring, before the superior songsters have arrived. Late in October these interesting little fellows congregate in small flocks and depart on their southern migrations.

Passing by a potato patch we often notice a very handsome bird perched upon the fence or some other convenient place; if we watch him closely we will soon see him dive down among the potato vines, capture a fat bug, and return to his perch to eat it. The Rose-breasted Grossbeak, though looked upon as a nuisance by those who have not investigated much, is really a valuable bird. The single habit of eating the potato beetle, if he possesses no other good qualities amply repays for all the damage he does by taking a little fruit.

Should he favor us with a song, we will observe that in respect to musical qualities he is excelled by but few of our other species. Its tender and affecting notes are occasionally uttered in the night as well as in daylight. So far as I know but one brood is raised each season. The Grossbeaks are not among the earliest arrivals in spring, and they usually depart early for the south. The farmer who studies carefully the habits of this bird will be well rewarded.

In conclusion I would say, that the study of the character and habits of these feathered bipeds is far from being a waste of time. The Minnesota farmer is coming to devote more time year by year to the education of himself and his children, nor would I have it otherwise. The brain as well as the hand of the useful citizen must be well trained and properly instructed, and to this end increased facilities are being placed within our reach each year, and the time has now arrived when we can truly say of our "fellow farmers" that though his hand be calloused and his gait agricultural, his mind should be stored with useful knowledge.

REPORT OF PETER M. GIDEON, SUPERINTENDENT OF THE STATE FRUIT FARM.

EXCELSIOR, MINN., Oct. 30, 1881.

To Edward D. Porter, Professor of Agriculture, University of Minnesota:

DEAR SIR :—Below I give a brief report of the doings and success of the State Fruit Farm, during the present year :

Last winter, though severe, was less ruinous than anticipated ; only lost ten or twelve out of fifty varieties of long-keepers, not one of which on their own tender root, such as is generally used in nursery stock, could have survived the winter. But grafted on our hardy seedling stocks, they mature early and thus stop the sap flow and prepare for winter in time.

It gives assurance of ultimate success in growing long-keeping varieties by fertilization and by commingling the pollen of our most hardy, though early varieties, with that of the long-keepers. Thus hardness is given to the forth-coming seedlings, grown from the seed of the long-keeper. This is a very desirable result as there are no long-keepers yet tested that will make a long lived tree. Though grafted on the most hardy of stocks, they give a few crops, and that is the end of them. But in those few crops we hope to secured the desired prize.

As yet no long-keepers have fruited, but I hope by another year to produce a few specimens, as the trees are doing quite well.

As anticipated, each year we lose trees, but each spring their places are filled up again. When full the orchard holds 768 trees.

As to pear culture, the prospects are not flattering. Last winter blighted all except those on the American Mountain Ash. It hurt some of these even. A few more years of trial will tell definitely, whether they will be a success or failure.

We have about 600 grapevines on the State farm, consisting of nearly every variety of note in the United States. Most of these will probably fruit next year. No variety of blackberry will flourish here under cultivation, not even the native.

We find the raspberry and strawberry culture a paying success. Will be better able to judge of the varieties, another year.

That part of the State farm, cleared and ploughed by order of the University, and by the same paid for, contains five acres, two of which are covered by our best seedling apple-trees. This work was done without charge on our part; and we will utilize the balance if not otherwise ordered.

Important experiments on our own grounds, have not been neglected.

During the last two years grafting has been almost a failure, owing to the damaged condition of the trees. The effects of the two last hard winters have been pernicious. Some fine samples of new seedlings bore the first crop this season, but further trial will tell their real value in quality, and whether hardy trees spring from them.

We have a fair prospect of making peach culture a success. We had some fine fruit of this species this year. But it requires care and skill, for the trees have to be laid down and covered the same as the grape-vine; but it will take another year or more to tell whether it will pay for home luxury or for market. If a success, the whole procedure will be given.

Respectfully,

PETER M. GIDEON,
Supt. State Expt'l Fruit Farm.

THE GEOLOGICAL

—AND—

NATURAL HISTORY

SURVEY OF MINNESOTA,

THE TENTH ANNUAL REPORT,

FOR THE YEAR 1881.

N. H. WINCHELL,

STATE GEOLOGIST.

1

ST. PAUL:
J. W. CUNNINGHAM, STATE PRINTER.
1882.

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ADDRESS.

To W. W. FOLWELL, President of the University.

DEAR SIR:—The accompanying report gives a summary of the work of the Geological and Natural History Survey of the State during the year 1881, being the tenth annual report. In thus rounding a complete decade of consecutive annual reports on the Geology and Natural History of the State, I think, sir, that the University and the State may be congratulated on the success which has attended the enterprise, a large share of which is due directly to the wise provisions of the law by which the survey is carried on, as conceived by yourself in 1871.

Respectfully submitted,

N. H. WINCHELL,

State Geologist and Curator of the General Museum.

The University of Minnesota, Minneapolis, December 31, 1881.

REPORT.

I.

SUMMARY STATEMENT.

The field work has been continued by Mr. Upham, aided in July and August by Mr. H. V. Winchell. The field of examination has been the north-central and northwestern portions of the State. These counties are almost entirely covered with a heavy sheet of drift, and necessarily, most of the recorded observations and investigations have related to the surface geology, and a large fund of valuable information has been added by Mr. Upham to the historical geology of the Quaternary Age. That ancient body of inland water which in former reports has been styled *Lake Agassiz*, has been found to have extended its highest shore line far toward the east, in the northern part of the State, probably including within its limits the present Red and Rainy lakes, and the Lake of the Woods, giving the well known topographic features of the Red River Valley, to a much larger extent of territory in Minnesota than had formerly been supposed, even quadrupling the known area pertaining to the valley as heretofore limited. Not only is this a valuable accession to the known agricultural capabilities of Minnesota, but the results attained in other directions, are equally valuable to science. The beach lines of Lake Agassiz have been subjected to a careful inspection over a distance north and south of about one hundred and seventy-five miles, resulting in the discovery of some peculiarities which have a direct bearing on their formation and history, and aid in filling out an obscure chapter in the geology of the Ice Age. Some of these peculiarities may be mentioned briefly.

The lake had three stationary periods, forming three beaches. They all ascend above a given datum level toward the north, the rate increasing in going toward the north. The highest beach line ascends one hundred and twenty-five feet in about one hundred and fifty miles, the beach being one continuous shore line. The northern portion of the lake fell at intervals from this high beach-line, forming lower beaches successively at about eight, fifteen, thirty, and forty feet, while the water level in the extreme southern part stood nearly stationary, the northern fractional beaches converging into one toward the southern extremity of the lake. The next distinct beach found in the southern part of the region ascends toward the north seventy feet in one hundred and fifty miles. The surface of the lake had now fallen thirty feet in Traverse and Grant counties, fifty feet in northern Clay county, and ninety feet northwest of Maple lake. The fall of the lake had therefore been sixty feet more at the northern than at the southern end. Double and multiple ridges occur along the northern half of this distance. The third beach-line, formed when the outlet had been excavated to the level of Lake Traverse, is known along a distance of one hundred and thirty-five miles, and its northward ascent was at first fifty feet and and afterward only about twenty-five feet. Toward the northern extent of this beach are also additional lower beaches, indicating a halting descent of the water level. The fall of Lake Agassiz from the highest beach level to the third, at Lake Traverse, was about eighty feet, and in the vicinity of Maple Lake one hundred and sixty-five feet. But the rate of ascent of this third beach-line is less in the northern portion than toward the south. These phenomena seem inconsistent with that hypothesis which supposes an elevation of northern land as a barrier to contain this vast inland lake, inasmuch as these beaches would have to present a slope in the opposite direction in order to change the outlet from Lake Traverse to Hudson's Bay. The same kinds of beaches appear about the southern shores of Lake Erie and Michigan, and have often been referred to in geological reports. They have been ascribed to the operation of the glacial period in the epoch of its decline, when the ice still existed toward the north as a barrier to prevent northern drainage. The same obstruction must have existed in the Red River Valley, and in the opinion of Mr. Upham, its attraction was sufficient to move the mass of the water toward itself and to cause an ascending shore line in that direction. Any such barrier, operating inversely as the squares of its distance from different parts of the lake, would thus cause a more rapid ascent in those portions of the shore line near it than in those more remote.

Lake Agassiz, probably covered Red Lake under fifty or one hundred feet of water above its present level, Lake of the Woods under about two hundred feet, the Red River Valley at St. Vincent, four hundred and fifty feet, and Lake Winnipeg, about six hundred feet. It is supposed to have extended east as far as the east end of Rainy Lake, but no definite statements can be made yet concerning the northern slope of the State between Red Lake and Vermilion Lake.

The distribution and characters of the crystalline rocks in the central portion of the State, including the counties of Stearns, Sherburne, Benton, Morrison, Mille Lacs, Kanabec, Aitkin and Todd, and portions of Carlton and Pine, have also been ascertained by Mr. Upham.

The failing health of Mr. C. M. Terry, rendered it necessary for him to suspend active work about the middle of May. A trip to Florida afforded him no relief, still he was preparing to resume work on the survey in the latter part of summer, when he was taken worse and he died.

His contribution to the last report of progress, pertaining to the Hydrology of the State, shows the carefulness and the scope of his work. His perseverance and industry were remarkable, and the amount he accomplished, with his feeble health, was a surprise to those who knew the obstacles under which he labored. He has left some maps, notes, and incomplete manuscript, which will be made to contribute in his name, to the completion of the subject to which they pertain. I cannot forbear at this place, giving testimony to his uniformly, cheerful disposition and urbane personal bearing, his high integrity, his zeal and industry, and his truly scientific methods of work and thought. Having spent some years in the christian ministry, one of the most instructive facts of his brief labors for the survey, is the ease and quickness with which he turned himself to purely scientific pursuits. He began with careful laboratory work, requiring patient mechanical manipulation, and he succeeded from the outset. Whatever he undertook, he knew how to accomplish at once. Having a trained mind, it was no task for him to apply it vigorously and persistently, in a new field of labor. A general suggestion, or an intimation as to the direction to be given to his labor, was all that was necessary. Had he been able to finish the work that he had in hand, one of the most useful, thorough and instructive chapters of the final report of the survey would have been written by him.

Mr. C. L. Herrick continued to work in the laboratory of the survey and in the Museum, till the first of July. He sailed for Europe in September, and is studying in Leipzig. A contribution of his to the survey reports has been under way ever since the publication of his paper on *Microscopic Entomostraca* in the seventh annual report.

My personal labor has been given to the preparation of chapters for the final report, which, with the prosecution of the building-stone investigation, the office and executive duties, and the conduct of the last annual report through the press› have occupied my whole time. It has been necessary to visit most of the quarrying localities in order to obtain samples of suitable size for use in the examination of the building-stones of the State. At the same time the quarrying statistics of the State were furnished the U. S. census for 1880, and additional samples were forwarded to Washington to be subjected to a careful analytical examination by the government, calculated to further elucidate the nature of the rocks of Minnesota.

In the Museum report will be seen the recorded additions to the collections, and their sources. No important purchases or changes have been made either in the material of the collections or arrangements of the Museum rooms. There will be no occasion to make important changes before the erection of the new building for the use of the Museum, which has been ordered by the State legislature. Indeed, it would be poor policy to lay out much more expense on the old rooms. In the new building it is expected better accommodations will be afforded not only for the exhibition of the specimens, but also for the handling and examination of the various classes of rocks. The thanks of the University are due to Col. J. B. Clough› for fossil specimens of extinct vertebrates from Montana, and for Indian implements, for the General Museum, and for other specimens, and to O. E. Garrison, for procuring samples of water from Mille Lacs; and to Dr. —— Miller, of the Little Missouri Cantonment, for a collection of fossil leaves from that locality.

The survey is also under obligations to Prof. A. H. Chester, of Hamilton College, N. Y., for a report on the geology of the iron region east of Vermilion Lake, based on observations made by him during two seasons spent in that part of the State exploring for iron in the interests of non-resident capitalists. The report of the survey for the year 1878 called attention to the existence of iron ore in the northern part of the State in large quantities, and to the fact that parties interested in iron from eastern States have made costly surveys and examinations, attesting the value of these deposits by field exploration, and by laboratory assay. Since then others have become interested in the same way, and it is not premature to predict that the iron ore of Minnesota will, not many years hence, be largely wrought, and yield to the State a revenue which will be commensurate with the extent of the deposits and the importance of such industry. It would be well if the capatalists of Minnesota would look after this matter, and by concerted action, retain within the State as much as possible of the profits of such development of these ores. The blast furnace which is now in operation at Duluth, using ores from Marquette, should be supplied from Minnesota, and Minnesota railroad companies should see to it that these ores are made accessible. Our iron ores are the farthest west of all the Lake Superior deposits, and being in the midst of timbered lands are situated favorably for reduction by charcoal; while the great region west and northwest destitute of the rocks producing these ores, will always have to depend on us for iron and its products in the same manner as for lumber. Eastern iron deposits and eastern furnaces should not be allowed to find it profitable to send their products past our doors when we have every requisite and every facility for producing the same. It would be a thing highly creditable to the Regents and to the University, to be directly instrumental in developing this great industry, and I hope that general attention may be called to its feasibility.

I wish to call your attention again to the destruction of the forests by fire in the northern portions of the State, and to refer you to representations made in the report for 1878, (p. 24) and again in the report for 1879, (p. 134). The Legislature should be asked to enact the necessary laws, with penalties, to preserve the forests, and especially the pine forests, from destruction. These fires are not occasional, but seem to be habitual. No country in the world, claiming to be a civilized and enlightened commonwealth, should permit such wanton destruction of the public domain for one moment when once informed of it, and it would not be possible were it not for the sparseness of the inhabitants, and the indifference to the public interests too often exhibited by republican Legislatures. It would be well if co-operation could be had with the Canadian government in any effort to suppress these fires, since they originate on both sides of the international boundary. The The University pine lands, on the St. Louis river, are annually in danger of being devastated.

II.

PRELIMINARY LIST OF ROCKS

COLLECTED BY N. H. WINCHELL IN 1879—CONTINUED FROM THE LAST REPORT.

FROM FOND DU LAC TO KNIFE FALLS.

443. The red sand rock at Fond du Lac. This dips E. S. E., or S. E., about ten degrees.

443A. Quartz pebbles from No. 443.

444. About the center of S. W. ¼, sec. 6, 48, 15. Here a bed of dark-red shale strikes across the bluff. This is about eighteen feet thick, and has thin beds of sandstone occasionally, much as the limestone is embraced in the shales of the Hudson river formation. This shale has spots that are greenish. Pieces of the same color (and also red) are sometimes seen in the midst of the massive sand rock (443) which, on weathering out, (where quarried,) give the rock a loosely porous and (apparently) conglomeritic structure. There are belts and thin strips, parallel with the bedding, that are conglomeritic with white, or glassy (not milky,) water-worn quartz pebbles, that are sometimes larger than hen's eggs, but the great mass of the whole is a homogeneous sandrock. They are sometimes more shaly, and also on separating some of the thin layers, they even show micaceous interlamminations. The general color is a dark red-brown, like the brown sand rock of the "brown fronts," but it has layers that are of the ordinary light-colored sand rock. This light color is sometimes disseminated through the red in round spots or specks, or is clouded and mottled in it over considerable areas. Sometimes a solitary quartz pebble, as large as a walnut, is seen in the otherwise homogeneous brown sand rock; and occasionally one is as large as a man's fist.

Below the above-mentioned bed of dark-brown or red shale, the rock is altogether less firm and siliceous than it is above, or to the east. After a thickness of about twelve feet of rock, somewhat like the rock overlying, another bed of shale, or shaly rock, is met with, whose extent cannot be defined, as it seems to alternate with thin bands of shaly sand rock confusedly, the latter having cross-stratification, until finally the whole formation, so far as seen in the bluff, almost deserves to be styled a shale. It resembles the red shaly sand rock of Good Harbor Bay, near Grand Marais. It sometimes weathers out in slates. (less than one-fourth inch thick) which are flexible, and red like the rest, but rather fragile. It has belts of green shale running parallel with the bedding. There is a thickness of about thirty feet of this shale visible along the river by the railroad, before it is hid again by trees and talus. It becomes all shale. The apparent horizontality is due to a change of direction in the bluff. Some of it is quite siliceous, but in very thin sheets. The brick-red color is sprinkled with light spots; and there are belts, three or four inches thick, of a light bluish-green color. The green color, indeed, seems to be the original color, and prevails largely on tearing down a lot of the layers. Although following the layering in belts, or elongated with the bedding, yet these light-green spots are also globular, or oblate spheres passing through several sheets of the thin shale, which shows no change but that of color.

At the high bridge, "No. 1," which is over a little creek at center of sec. 1, 48, 16, the formation shows about the same dip, but is more nearly a sandrock again, but still with alternating layers of slaty sandrock, (often with cross-bedding,) and red aluminous shale in thin layers; but where the creek joins the river there is a bed of about three and one half feet of red, crumbling, conglomerate. This lies below the shale last mentioned, and has below it an exposure of about six inches of cross-bedded sandrock. Thus, in ascending the creek, the layering is as follows, No. 1 being the lowest:

1.	Cross-bedded sandrock, next the water	6 in
2.	Crumbling conglomerate, rather fine	3½ ft.
3.	Shale, with layers of six and eight inches of shaly sandrock with cross-bedding	4 ft.
4.	Shale..	18 in.
5.	Sandrock	8 ft.
6.	Like No. 3	12 ft.
	Total	29 ft. 6 in.

The above section is all on the lower side of a *fault*, i. e., on the river side, and on the left bank of the creek. Above the fault, which is hid on the opposite side of the creek, the visible section consists of the following:

1.	Crumbling conglomerate, rather fine	3½ ft.
2	Shaly sandrock, with belts of greenish, shaly sandrock and of shale..	10 ft.
	Total	13½ ft

It seems as if the conglomerate had passed up to the upper level, a distance of about fourteen feet, but there are fractured and curved beds at the fault, indicating a subsequent settling again of about six inches, after the fault had closed up.

446. Black roofing slate, near the section line, between 30 and 31, in town 49, 15, in the bottom of a branch of Mission creek, very inconspicuous exposure, covered in high water. The slaty cleavage strikes across the creek east and west.

447. Nearly on the town line, next south, below the two forks from the northwest, in the bottom of Mission creek. This is a lighter colored slate than the last, but related to it closely. It strikes in the same direction and rises about four feet in the right bank of the creek.

448. Crumbling, red conglomerate, from the tilted beds of the St. Louis, at a point near the bridge ("No. 1,") over the creek mentioned, but lower in the formation than the three and a half foot bed. This bed is fifteen feet thick, shows a strong dip, and is underlain, in ascending the creek, by two feet of shaly sandstone, and then by fifteen feet of shale not well exposed. Under that, still higher up the creek, may be seen six feet of red conglomerate descending below the turf, and extending along the bank so as to make, with the dip constant, about fifty feet.

449. Below the last appears this number, which is a hard pyritiferous, pebbly conglomerate, consisting largely of quartz pebbles. This is seen on S. W. ¼ of N. E. ¼ Sec. 1, T. 48, 16. It dips with the red beds, about 10° E. of S., by compass. Some of the pebbles are two or three inches across. The pebbles are mainly of milky quartz. Some are translucent. Some are black or gray. In some places nearly one-half of the gravel is of the underlying slate formation. Just above the junction of the two creeks there is a blind vein of calcite about two inches thick, running north and south in this conglomerate. The conglomerate extends a few rods along the creek; both branches, and before it disappears, which it does by rising in an incline along the left bank in accordance with the dip, it shows about eight feet of bedding; and within the distance of about two rods the Thomson slate formation appears in the bed of the creek, and soon form a considerable exposure along the bank. The slates stand nearly perpendicular as the weathering separates the cleavage planes, and they strike east and west, as at Thomson. But it seems as if the conglomerate lies lower where it is last seen in the bed of the creek, than the slate when it first appears, and so low that even with the dip, which would of course tend to throw it higher in ascending the creek, it could not get over

the slate. Hence it is probable that the conglomerate lies in depressions in the slate surface, and is thicker in some places than in others. At this place the contact is not visible, but there cannot be much between the points seen on each side. So that, as already stated, there is too much conglomerate to fill the unseen interval. This conglomerate appears conspicuously on the St. Louis, S. E. ¼ Sec. 2, T. 48, 16. (For a complete section of the red sandrock beds, see after No. 510).

450. Samples of the Thomson slate, from the river bank, S. E. ¼ Sec. 2, T. 48, 16, underlying the conglomerate, No. 449.

451. Samples of the same showing, the slaty cleavage transverse to the bedding. The dip of the slate beds is to the S. W., amounting to about four degrees, the conglomerate being unconformable.

452. Slate pencils, formed naturally by the intersection of diffierent divisional planes, having a rhomboidal section. The overlying coarse, gray conglomerate, seems to have a thickneess of about 100 feet. Above that is a considerable red, finer conglomerate, perhaps fifty feet.

453. Slate from the lower falls of the St. Louis river, S. E. ¼ Sec. 10, T. 48, 16.

454. Near the foot of the falls, on the left bank, are several "veins," or folia of white quartz, parallel with the slates, some of which are four to six inches in thickness. They are all in an interval of about three feet, with folia of slate between.

455. Slate embraced between and contiguous to the white quartz.

456. Harsh, arenaceous, gray, firm beds, two to three feet thick. embraced in the slate at the lower falls, having no slatiness.

457. Slate; average sample for the rock of the lower falls.

The cause of the lower falls is the occurrence of a dyke of igneous rock which crosses the falls near their brink, hardening the layers of the formation. The falls cross the river stragglingly about east and west in conformity with the strike of the formation, and descend about twenty-two feet in the distance of about six rods, but the water is rapidly descending in other short cascades for a quarter of a mile above the falls. Also below the falls it continues as a rapid to the foot of the islands, descending about fifteen feet more. The dip, which is taken to be the general incline of the heavy beds toward the S. E., is 63 . but there is a multiplicity of folia, joints and seams, and sedimentary planes, that all confuse the question of the dip. This measurement was made near the dyke, and on the east side of the river.

458. Hardened slate formation, contiguous to the dyke at the lower falls. The slate here has a coarsely basaltic structure along the east

side of the dyke. The columns run E., S. E. and dip about thirty degrees from the horizon.

459. The doleryte dyke at the lower falls, by compass, runs N. N. E. and is at least twenty feet wide. It may be twenty-five feet, but the high stage of water prevented a full view of its western extent. This has so hardened the slates that they are more durable under the action of the river than the dyke itself.

460. Above the falls, nearly opposite Island No. 6, (the islands being numbered up stream,) two other dykes are seen on the east shore, the rock being of the same kind as the large dyke (459), but finer grained. One seems to be about eight feet and the other about ten feet wide.

461. Sample from the eight-foot dyke.

Above the lower falls, along the east side of the next island, the rock stands up in the channel as very rough islands, the water descending about twelve feet near the lower end, and about nine feet near the pper end of the island. The fall near the upper end of the Island No. 5, is due to the occurrence of a rather soft and fissile layer of the late immediately below (i. e., down stream,) a harder part, the softer art having been torn out faster than the rest. At the large rock sland, east of the upper end of Island No. 5, the dip of the formation s 27° S. E.

There may be other dykes, not visible on account of their crossing he river under water entirely and entering the banks where they are id by drift-wood or by standing trees and bushes. The dyke rock ears away faster than the formation that they cut.

The rapids below all the islands (on Sec. 15,) are over boulders. hese rapids continue on between the islands to the foot of the fall hich is on Sec 10, at the head of Island No. 3, the island itself cutting the fall into two parts, the greater part running to the east of the land. Six or eight rods below the foot of the fall begins the second land. Island No. 1 begins still further down stream and is cut by he section line between 10 and 15. This last is a very small island, aving but three large pine trees, (though several small ones,) and ems to consist of boulders, and rises but two or three feet above the ater. Island No. 2 rises twenty feet above the river, and is wholly vered with pine, with a few birches and cedars. A high drift-bluff, 27 feet,) causes the current here to turn rapidly toward the southwest, niting with that which passes down the west side of the west island. ust above Island No. 6* is the wildest and most tumultuous portion

*The islands number 6 instead of 5. They are wrongly represented on the township plats. There are o a number of rock islands.

of the river, where it comes nearly along the strike of the slate. The descent here, in about a quarter of a mile, must be about forty feet. There is no regular fall, but a rushing and foaming torrent, dashing from side to side of the channel, cut and parted by the jagged protrusions of the highly dipping slate, which by its variations of hardness forms troughs that alternate with sharp and angular ridges. The dip of the slate, which sometimes rises in the middle of the river twelve or eighteen feet, and is very conspicuously disposed, varies from thirty to forty-eight degrees to the S. and the S. S. E. The former dip is to the S. and the latter to the S. S. E., the slaty cleavage being nearly perpendicular all the time. The grand bedding of the slate is in thicknesses of fifteen to twenty-four inches, but there is also a thinner bedding which is in layers of a few inches. Perhaps the heavier beds would show a finer bedding if favorably weathered.

The roar of this river here is greater than that of St. Anthony Falls, and it seems equal to that of Niagara. It is continued over so long a distance that the multitudinous dashing seems to make as much atmospheric commotion as the single plunge of a large stream at Niagara, and to be comparable to the roar of an extended beach-line. It can be heard for sveral miles, and is like the rumble of a heavy freight train on the railroad, for which it is apt to be mistaken at first, as it comes with the changing currents of wind or is echoed on the bluffs.

462. Fine-grained dyke-rock, from a dyke crossing the river at the mouth of the creek coming from the north on S. W. ¼ Sec. 10. It is above the foregoing rough and jagged portion of the river channel, visible only on the shore. It is less durable than the hardened slate. It is about thirty feet wide.

463. Rock similar to the last, from a dyke eight feet wide running N., about 15° E.. on N. E. ¼ of the S. E. ¼ Sec. 9, T. 48, 16, crossing the river.

464. From a dyke crossing the river a short distance above the last in the same direction, but thirty feet wide.

About thirty feet above the last appears to be another narrow dyke about six feet wide, but no certain pieces *in place* can be seen on the north bank. It shows as a gorge in the slate on the south bank. It is situated about ten rods below the small island in the river seen on the S. E. ¼ of Sec. 9, and about five rods above is another of the same uncertain character.

At the island on the S. E. ¼ of Sec. 9, T. 48, 16, the river is very rough as it separates and plunges among the rocks. The strike of the slate is nearly in the direction of the river. The island itself is made of a knob of hardened slate, with a few trees, and the beds that have a strike on each side of it stand up in the channel like inverted plows, and cause the water to twirl along on one side for a few rods or feet when it leaps over, or rises and falls over like the turf on the coulter, and runs into another trough from which it escapes in the same way. This takes place on each side of the island, but is particularly interesting and beautiful near the head of the island on the north side. Below the island, in the main channel, it then repeats this operation as it makes its way through other troughs. Generally the whole river is divided into several such troughs, but in a few places it is all embraced in one rapid chute about twenty-five feet in width; along the sides of which there is a boiling return current up stream, as the central current plunges and foams downward. I think there is noththing in the State that surpasses several of the scenes along this river. Norwood says the upper falls are indescribably beautiful, but I do not see how they can exceed these. Above this for half or three-quarters of a mile the river is more tame, but still constantly rapid, and impassable even for canoes, with frequent ridges of slate along shore and in the channel.

Just at the head of the island, and on the south shore, is an interesting irregularity in the layers of the slate. They first appear horrizontal,. or rise gently from the water to horizontality. Then they bend downward, and even dip slightly northward, toward the river; then are suddenly deflected upward, but return to horizontality, when they again begin to dip into the river. This apparent change of dip is to a large extent only apparent. The beds still really dip south, the appearance being due to undulations of the strata, as viewed against the strike, combined with a jointage which breaks off so as to leave smooth planes sloping northward.

465. The slate formation from the railroad cut, N. W. ¼ S. W. ¼ Sec. 9, T. 48, 16. Tough gray, firm rock, hardly showing any tendency to slaty cleavage, finely arenaceous.

466. Siliceous slate, quartzyte, from the falls, center of Sec. 8, 48, 16.

Near the center of Sec. 8, is another fall of twenty-two feet, the river coming directly across the slate range from the N. W., the slate striking E. and W. The beds here dip 33½° toward the S. S. W., swinging round to the S S.E., and being then in a dip of 39 to 43°. This highest dip is seen at the narrows, where the water crosses the strike of the heavy beds. At these falls the rock appears less slaty than usual, though occasional similar layers of more siliceous rock occur mingled with the slates at points lower down the dalles. Here are heavy siliceous layers that require for the formation rather the designation of a quartzyte than a slate. Yet it is slaty, and breaks with the cleavage easier than against it. The rock here is also accompanied with deposits of white quartz, which is like that seen at Little Falls, and cracks up like that. The quartz deposits are seen to be rather veins than foliations, though they follow nearly the direction of the slaty cleavage.

The strike of the slate hills in sections 9 to 4, (48, 16,) is east, 10° north, and the dip is from 46½ to 60° toward the south, and the slaty cleavage runs almost east and west.

467. Rock of the dyke at Thomson bridge.

468. Rock adjoining the dyke at Thomson bridge.

The river at the railroad bridge over the St. Louis is running in the course of a dyke of igneous rock, about twenty-five feet wide. This being more jointed, and at the same time more easily rotted and disintegrated, has caused the gorge through which the river passes under the bridge. The walls on either side being of hardened quartzitic slate, are much more durable. This dyke is visible in the bluff facing the bridge down stream, and the rock is coarse and gray, but it is nearly hid by its own tumbling debris, while the slates stand up firm from sixty to seventy feet above the river. The dyke has a direction N. N. E., but is some crooked.

There is an island, also of hardened slate and quartzyte, in the river, visible from the bridge. This is due to the existence of another fracture in the formation which runs southwardly nearly to the bridge when it unites with the larger dyke; but just as it meets the larger dyke, the intervening slates were so finely, and so entirely metamorphosed, that the hardened mass has formed still another island (in very high water,) on which a pier of the foot-bridge rests. There is no evidence of this second smaller dyke except the gorge and the hardened slate walls. This gorge that forms, with the larger gorge, the two islands, continues northward a short distance in the north bank of the stream, but there is so much fallen drift and quartzyte in it that no igneous rock can be seen. The dip of the formation is 46½°. Half a mile northeast is a large dyke, sixty feet wide, which comes to the river between Thomson and the railroad bridge. It runs at an angle of forty-six degrees with the strike of the slate and quartzyte hills, but it is much more easily destroyed than they.

469. From near Miller's Mill, north of Thomson, a quarter of a mile. This is from a bed of harder, non-slaty, gray quartzyte, belonging to the formation. It weathers nearly white from feldspathic

ingredients, and from the abundant quartz, so as to look much like the trachytes of the western territories, but within is much darker. This bed is eleven feet thick, and in some places is conglomeritic. It has slaty layers on each side of it. It is massive, but parted by seams of white quartz, some of which are four inches thick. These seams wedge out lenticularly, and diagonally across the beds. The same sort of quartz veins are in other parts of the formation. Indeed, white quartz deposits are quite frequent in all kinds of seams or joints, or cleavage openings. The feldspar of this rock is triclinic and the ridge is *faulted*, the east side being moved south about twelve feet. (V. Nos. 310, and 418, and 505).

470. Slate, quarried for roofing, near Miller's Mill. This is black and of even, fine grain.

471. Slate like the last, from another old quarry.

472. White quartz, from a heavy deposit, forty rods above the railroad bridge, where the county road crosses the river, in the right bank. It is embraced in the slate, and its manner of occurrence is exposed on the side toward the river. It coincides in direction with the slaty cleavage. Near the top, the deposit is nearly ten feet thick, N. and S. but standing vertical it runs but little distance downward. It can be seen to run out, almost entirely, about twelve feet below the top, something like the roots of a tooth running into the jaw below the crown. It is not coincident with the bedding, nor with any system of joints, but stands perpendicular. It extends E. and W. conspicuously about ten rods. It is crossed by a narrow dyke, and it is faintly exhibited on the wall of a slate-ridge further west, and at a level twenty-five feet higher. Along the river channel where the water sweeps it, one large root runs below the water with a width of nearly two feet, and also another of six inches, but the greater part of it pinches out within ten feet of the top. At the place of deposit of this quartz there seems to have been an anticlinal locally formed in the slate formation, and the opening produced by the upheaved fracturing was afterward filled by quartz, some of it also collecting in other openings, the whole standing in nearly a vertical position. All about here is evidence of much displacement and crumpling, but rarely is there seen so evident a dip toward the north. The quartz is milky white, and mainly massive, but sometimes shows a splintery cleavage in the direction of the slates. It is jointed, and disintegrates by falling out in blocks which are distributed down the river, and once probably furnished stones for the quartz conglomerate (No 449) As to minerals, this quartz contains galenite, pyrite and siderite.

473. Pyritiferous gray quartzyte (?); from the ridge along which the large quartz vein (472) is visible. The pyrite is scattered in perfect cubes, sometimes three-fourth inches across, and occasionally an inch, through the rock. The most of the cubes are about the size of peas. The rock is like No. 469, but finer, and has siderite as well as pyrite disseminated finely through the whole, the former becoming oxidized at the surface.

In some of the quartz veins which cross the strike diagonally, particularly in rock 469, and 473, which veins die out and are replaced by others a little further to the right or left, lenticularly, the white quartz has been intercrystalized with siderite, which on weathering changes to hæmatite, and then washes out if wholly free to the air, leaving a gashed appearance among the quartz crystals when exposed. On deep fracture, when not thus exposed, the siderite is preserved—and in other places can be seen passing into hæmatite.

474. Dyke rock, near the Northern Pacific Junction. This dyke is thirty feet wide. The average dip of the slate formation in S. W. ¼ Sec. 6, T. 48, 16, is 57 deg. to the S. 5 deg. E. West of dyke rock, No. 474, which is a little east of Paine's saw mill, are other dykes, parallel to 474, one being still nearer the mill, on the east side, and one west of the mill. They all run about N. 5 deg. E. (compass), with a slight variation a little east or west of that, and they all consist essentially of the same kind of rock—a greenish gray doleryte. In both respects they are like those seen crossing the river below Thomson.

475. Doleryte from the most westerly of the above mentioned dykes—one of the triclinic feldspars appears porphyritically in this, which is not common in the rock of these dykes.

Up Otter Creek, two or three miles west of the Junction, there is said to be a large exposure of rock, like that at the Junction. It seems then to continue on to Moose lake, where it is again seen thirty miles south of the Junction, and causes a rough and more elevated tract of country. On the road to Twin lakes, about a mile south of the Junction, there are three or four ridges of slate.

Northward from the Junction, along the Knife Falls railroad, a number of cuts in the rock display its character and position. Cut No. 1 is about three-fourths mile from the Junction and is in slate that dips south at about the usual angle. There is a little ridge further north, and on the west side, that has a much higher dip to the south—about seventy-five degrees. Cut No. 2, which is nearly a mile further north is in a hard, gray, massive quartzyte, which has joints running in various directions, and shows no dip, but in a small slate outcrop along its northern side there is sign of sedimentation dipping about 45 deg. S. (as usual.) The same dip can be seen in a parallel slate range on the west of the road nearly opposite this cut. This quartzyte range is high, long and conspicuous toward the east, but to the west it soon ceases. The slate range on the west also is short, and the surface settles down to a valley in which there is a stream, with a high timbered plateau on the north side.

Cut No. 3, about two miles north of the Junction, is near this high land, but the road bends east at the cut so as not to go directly toward it. (See No. 505.) North and west of the Junction are numerous slate ridges which are not struck by the railroad.

The river below Thomson is filled with rapids and falls all the way to "Bridge No. 5." There are four spots, in particular, where there is valuable water power:—first, near bridge No. 5, where the river in a short space is divided into various channels, by six islands that occur between its banks. Three of these islands are above the fall and three are below, but there is also a considerable fall above island No. 3, (numbering from below) extending to near the head of island No. 6. This whole fall is fifty-five feet. The existence of the islands and the widening of the river, as well as the extent through which the fall is carried before it reaches rather quiet water again, are favorable for the improvement of this power, and its utilization. But a short distance above the head of island No. 6, is the second fall, where the river is narrow, but has the rock formation of the country in conspicuous strike along each bank confining the water like artificial dykes, within troughs which run somewhat obliquely across the course of the river, and rising in knobs and rough islands (with constant dip toward the S. E.) in the midst of the river itself, sometimes eighteen or twenty feet. This condition of the river extends from near the head of island No. 6 to the dyke (No. 462 above), which is near the mouth of the creek that crosses the railroad on the N. W. ¼ of Sec. 10, and the fall here, which may be called cascade No. 2, amounts to sixty-five feet. There is then a gradual ascent of twenty-five feet among the rocks to the foot of the fall at island No. 7, and of twenty-five feet more in getting round the island itself, where the river is divided and beautified by the disposition of the slate ranges as already described under No. 464. This is cascade No. 3. Above this the river is more steady in descent for one-half mile, when there is a widening of the channel near the mouth of a little creek from the north, and a fall of about six feet over one of the harder beds that protrudes above the rest. This goes diagonally across the stream. There is then a similarity in the stream to and beyond the "retaining wall" of the railroad, a distance of nearly a mile, through which there is actually a steady ascent, amounting in the aggregate, from the head of cascade No. 3 to the foot of the Thomson Fall, to seventy feet. The Thomson Fall is regarded as beginning near the 133d mile-post of the railroad, (near the center of Sec. 8) and extending to the large island on Secs. 5 and 6. That part of it below the mouth of Otter creek which joins the river near the railroad bridge south of the railroad, extending a distance of nearly a mile, is thirty feet, and is caused by the strike of the rock going directly across the river, causing it in several places to be suddenly contracted in width to twenty or twenty-five feet, through which narrow passages the river rushes with some fall and a swift current. The most of the fall is near the foot of the distance stated, but there is an irregular rapid and rocky river all the way up to the railroad bridge that cannot consistently be subdivided, though it is more rocky at and near the mouth of Otter creek. That part above the mouth of Otter creek, extending to the foot of the large island, is thirty-five feet. The greater part of this is near the foot of the island, but the river is a rushing torrent, in a rough narrow gorge, sometimes split by islands, all the way from the first fall to the creek. The total fall from the brink of Knife Falls to the water at the foot of the lowest falls, N. E. ¼ Sec. 15, T. 48, 16, by aneroid, is five hundred feet, with an estimated descent of fifty feet more to the level of Lake Superior.

476. Rock from near the river, south bank, about a mile above Knife Falls. The same formation, with the same dip and outward aspect occurs along here. It extends at least to the village of Cloquet, the direction of the slates being E. 10 deg. S. inclined to the south at an angle of 75 deg. or 80 deg. Along the river are occasional low slate exposures. The islands are caused by low slate elevations.

477. From the same place as the last; coarser, similar to that near Miller's Mill. (No. 469)

These rocks are in some places cut by slaty cleavage. They are rather firm, but have a *grain* running in the line of the slaty cleavage (476), but in other places (477), it is not affected by cleavage, but is cut by joints running in all directions across it, so that there is a semblance to dip toward both the south and north. The slaty cleavage goes diagonally across the jointage systems. After a careful study the dip is made out satisfactorily to be toward the south. Between this place and the Indian Reservation, which is a mile above "Pose's," the country is covered with drift, and timbered heavily. At Pose's the bank is about one hundred feet high, and apparently consists wholly of drift. Usually there is a belt of swampy, clayey alluvium between the drift banks and the river, about six feet above the present stage of the water. The river is very quiet above Pose's to the little island known as *Pine Island*, three miles above, where there is a fall of about eight feet in a tumbling rapid, the most of the descent being below the island. No rock in place is visible at the island—only boulders, of many varieties, chiefly like the Rice Point rock at Duluth. The island has a covering of tall pine trees. The country is not hilly, only moderately undulating, with considerable good pine. The long, narrow island at Pose's is low and not rocky, or stony, even, but sandy and clayey. The lower islands are rocky.

478 Represents the last rock on the right bank of the St. Louis above Knife Falls. This is found on the south bank nearly opposite the foot of the island known as Homestead Island, very near the same place as No. 477 and 476, but further west This is firm, gray, crystalline, with translucent grains as if of quartz, also having rusty specks when weathered, as if from oxidized siderite or pyrite. This, under the microscope shows in thin sections that it is one of the arenaceous members of the formation. This is an important rock-horizon. It seems to run further east, and also to extend under the river, forming the islands—at least such layers occur in the strike of the islands, and also form the brink of Knife Falls. It varies a little, becoming more like the rock at Miller's Mill, (469), than 478 is.

This is supposed to be Norwood's "last rock," which he styled an igneous rock, or doleryte, (his No. 454), having a direction nearly north and south, crossing the river nearly at right angles. This rock has translucent grains (which may be his supposed nepheline) but it is certainly a part of the formation and strikes east and west.

479. Rock from the brink of Knife Falls, similar to No. 477, a gray quartzyte.

480 From the brink of Knife Falls, finely crystalline, with minute grains of quartz visible in thin section. There are places in the formation where there is a change in the crystalline character, a greater frequency of joints, a finer grain, a loss of cleavage, and other features that accompany the metamorphosing proximity of a dyke, but where no dyke-rock can be seen. This sample seems to be from such a place.

At Knife Falls the descent is fifteen feet altogether, and about six feet perpendicular.

On the island first above Knife Falls the dip is N. 25 deg , forming an angle with the slaty cleavage which dips S. about 85 deg., and frequent joints cut the strata The rock at this point is slaty in the direction stated, but the real slatiness does not appear as soon as a coarser slaty lamination which, on the surfaces of opened jointage planes, is in layers about one and one-fourth inch thick and looks like a bedding of sedimentation dipping almost or quite parallel with the slaty cleavage.

481. Slate, from the point above described. The piece has the lines of supposed sedimentation crossing the slaty cleavage as noted.

Just below the point of the last observation, which is where a small channel crosses the island in time of high water, is a nice little fall of about five feet, in the channel on the north side of the island, the channel itself being about twenty feet across. This rock is firmer than the rest of the formation here, and consists of alternations of argillaceous slate with a slaty cleavage, and a gray quartzyte. This quartzyte has translucent grains like the rock of 479. Here the dip is plainly 48 deg. S. 3 deg. E., the alternating quartzyte and slaty layers being a sure indication of *what* the dip is. This observation negatives the last note in regard to dip, the structure there supposed to be dip (illustrated by No. 481), being due to a former slaty cleavage, or to a foliation, or to a striation produced by friction, or to what? The water crosses the strike at an angle of about 45 deg., where it passes over these beds. There are ten beds of argillaceous slate that do not (with one exception of a bed of about three feet) exceed eighteen inches in thickness, some being but about six inches, alternating with hard and gray quartzyte layers which have a little greater average thickness. These layers strike to the north of the main falls in the south channel, and appear on the east end of the island below the falls. The slate beds have a perpendicular slaty cleavage, but the quartzyte beds have no cleavage of that kind, but are variously jointed. The slaty cleavage gradually fades out in the quartzyte beds, firmly cementing them with the slaty beds. Many of the joints of the quartzyte pass through the slate beds, particularly those that run at right angles to the strike.

482. From the above slaty layers.

483. From the above quartzyte layers.

484. Samples showing intermediate characters.

At the real Knife Falls, which are on the N. W. ¼ of the S. W. ¼ Sec. 13, T. 49, 17, and face toward the north, the brink running exactly east and west, the dip is 48 deg. toward the south, and the rock consists of alternations of slaty layers with gray quartzyte, exactly as ast described for mumbers 482-3-4. But there are here two very prominent and persistent beds of the gray quartzyte, one of which forms the brink of the falls, while the other is forty feet below the falls, and lies immediately over the section of beds represented by Nos. 482-3-4, or is separated from them by an interval of twenty or twenty-five feet occupied by the same sorts of rocks as those. This lower quartzyte bed forms a spit of jointed rock that projects eastward just below the falls. Along the banks, both on the island at the west end of the falls, and on the main at the east end, immediately below the falls, there are heavy beds of gray quartzyte which seem to be as durable as the rock in the brink of the fall, but they have not resisted the water so well as those further down, just mentioned. They rise, however, higher in the banks, especially at the east end. The rock over which the water plunges has a basaltiform jointed structure about at right angles to the dip, but no characters of undoubted igneous rock can be seen, nor evidence of igneous action in the form of dyke-rock. Yet, just at the west end, even west of the little island that is in the fall and cuts it into two parts (the little island and the west channel make about one-third of the whole)—there near the west end of the little channel the rock is closely jointed in a direction N. and S. (or nearly) and hardened, becoming fine-grained, these characters also striking the spit running east from the main channel. This dyke-like appearance has a width of about four feet, and although it is in a low spot across the spit where sometimes water flows in a high stage of the river, yet it forms a little island in the rocky channel just in the brink of the falls.

485. Is from this fine-grained rock which has the manner of a dyke, though it does not show the mineral characters of the dykes that cross the formation This belt runs N. and S. as above described. In thin section this rock proves to be granular and finely arenaceous, and hence a part of the country formation.

486. From the quartzyte spit below the falls.

487. Slaty alternations in the spit below Knife Falls.

488. Gray quartzyte, similar to 478 and 469.

This is from the north channel, from near the lower end of the third island (not counting the little island in the brink of the falls) and is north of that called Homestead Island. The rapids are twenty rods above its first exposure, which is much greater than on the south shore where 478 was obtained. These heavy, gray quartzyte beds, although they differ widely from the most of the formation, having a massive and jointed outward aspect, and thus resemble the dykes of true igneous rock, have not the composition of the dolerytes. Further, they run E. and W. instead of N. and S., and are interbedded with slaty layers. They could not be mistaken for dykes wherever their stratigraphic relations are visible. In this place no other rock can be seen. It extends along the shore about thirty rods (E. and W.) and does not vary. The main jointage system runs N. 3 deg. E. The rock gradually disappears among boulders some of which are very large, and yet seem to be like the same rock. They show, however, a little *grain*, or schistose structure, approaching that seen in some of the slaty beds of the formation.

489. Samples from one of these large boulders that seem to show a gradation toward the slaty beds. In rock 488 are veins of white quartz some being five inches thick.

About fifty rods further up the north channel is a cross-channel, between two islands, the water running north; opposite which, and immediately below, in the middle channel, are seen other rapids and much rock in place. The surveyors' plat of the river about Knife Falls is quite faulty. The islands are all represented as one, and the river seems to have but two channels instead of three. This rock shows a slaty cleavage running E. and W., which has a dip to the north, or is nearly perpendicular. It belongs to the formation of the country. South of this rock exposure, which forms a rapid place crossing the middle channel diagonally, is Homestead Island, or island No. 5. The rock is very like that forming the falls, but probably lies below it, as it is a little further north. In these rapids is a little rocky island, rising about eight or ten feet above the river, having three or four growing pines and cedars. These rapids are higher up the river than Norwood's "last rock."

490. An arenaceous, somewhat slaty, hard, gray rock, from the rapids in the middle channel, north of island No. 5, near Knife Falls.

491. From near the same place as No. 490, and related to it in position, in the same manner as the spit of hard rock below the falls is to the rock in the brink of the falls, *i. e.* in a conspicuous strike parallel and thirty or forty feet further north; a firm gray quartzyte.

492. Doleryte, from large boulders at the rapids at the head of island No. 4, scattered about as if from a large dyke in place near, but cannot be seen in place.

493. Gray quartzyte from boulders apparently derived from the rock in place near. The rock of the formation is in place at this point.

494. Rock from one of the firmer beds of the formation about one-half mile below Knife Falls, at the river bank.

Below Knife Falls in the first quarter of a mile there is a descent by rapids, of about twenty feet. The river then turns SE. The water is still rapid, and has a broken cascade over boulders at one-half mile, with a fall of about three feet. The rock is exposed constantly from

Knife Falls, the precipitous walls rising, at the cascade just mentioned, to the hight of twenty-five feet.

At a quarter of a mile below this is a fall of about seventeen feet in three hundred feet, there being no perpendicular fall. There is a division of the stream into four channels by the strike of five different persistent beds in the formation, the water running in the strike of the intervening beds, the hard beds forming islands in the falls. The width of the river at the brink is about two hundred and thirty feet, and a dyke of about two hundred feet crosses the river just at the head of thefall. This dyke is destroyed by the river faster than the rock itself, owing to its frequent jointage; and the most rapid descent of the water is over the hardened beds of the formation on the east side of the dyke.

495. Rock from the two hundred feet dyke at the falls above men, tioned. This dyke runs N. 5 deg. E., and is of a firm and fine grain though principally feldspathic. The dyke is finely jointed and easily shattered by the frost. The dip of the formation is S. 60 deg.

About one-fourth mile below this fall the river turns about south, so as to go directly against the strike of the rocks. The banks increase in height, the dip increases in degree, and at three-fourths of a mile further, there is a high rocky island (Fortress Island) from the foot of which a portage trail sets out to Knife Falls, on the west side of the river. The larger part of the stream passes on the left of the island, the descent being eight feet over large boulders. At this place the rock of the country is wholly slaty; and although a short distance above the island there is a gradual change in dip from 60 to 70 deg., and then to 90 deg., as the river exposes the beds, yet in viewing the island from the N. W. down stream, there is, besides the slaty cleavage, a coarse bedding or jointage system visible on the east side of the island that seems to dip about 45 deg. S. E. At a distance the island itself, in its perpendicular walls, covered with a red lichen, cut by joints that cause the slates to fall away in masses, looks like a basaltic island of igneous rock. But there is no igneous rock in it. It rises fifty or fifty-five feet above the water, and is covered by small pines, among which are many Norways. The actual bedding either coincides with the slaty cleavage or dips S. E. at about 45 deg. This is an interesting spot. The appearance of the island reminds one of basaltic Staffa, but of course its structure does not illustrate that. The banks of the river are not so high as the island, but on the east side the rock rises fully as high a short distance back. Below the island the valley is deep and has high, slaty walls, the water being steady for at least half a mile.

The portage trail which sets out here, going west, is that traveled by Norwood, and by the explorers and geologists that preceded him. Duluth was probably the first white man that passed over it. It leads to the Mississippi and to Vermilion lake Douglass Houghton traveled it with Schoolcraft, and with Lewis Cass. It was the outlet for the immense fur-traffic of the Upper Mississippi region. The name "Knife Portage," by which it is usually known, is well applied, because where it starts, and for some distance, the slates are thin, perpendicular and sharp like knives.

496. The rock of the country, from the beds *in situ* at the head of the uppermost of the chain islands above Knife Falls, (same as 493.) This was got by Mr. Terry on making a re-examination of the rapids. He reported no dyke in place there.

497. From near the middle of the central channel, a short distance above the head of the uppermost chain island, gray quartzyte, (Terry.)

Mr. Terry also found similar rock in place near the head of Homestead Island, but a little on the north side, in the central channel, which seems to be really the "last rock" to be found in the St Louis, until reaching its higher tributaries.

498. The rock of the country from one hundred and fifty yards above the fall where 495 was obtained. (Weitbrecht.)

499. Rock immediately overlying 498. (Weitbrecht.)

500. Slate from just below the falls described under No 494 (Weitbrecht.)

501. Doleryte dyke-rock, center of Sec. 19, 49, 16, right bank of the river.

Below Fortress Island, where the first little rapid is seen, a dyke crosses the river about N. and S. It is forty or fifty feet wide, and is best exposed in the right bank some rods below the rapids. It is represented by No. 501 This dyke appears again thirty rods further down, and can be traced for half a mile along the right bank, to and beyond the floodwood. The direction of this dyke carries it across the railroad, near Paine's mile at N. P. Junction.

The river is then tolerably slow to and beyond the cluster of small islands just below the floodwood (hence named *Floodwood Islands.*) The floodwood now is a floating jam, in length about the same as the width of the river, six hundred feet, with a few alders on it, and is wholly above the islands, the lower end of it being about 1,200 feet above the islands. There is, however, a considerable other floodwood lodged about the islands and sunken between them.

The river is then slow and broad down to three other islands (not represented on the surveyors' charts) below which it again soon descends over rapids caused by boulders, about two feet. Here the river is broad and shallow. Then appear two islands represented in the S. W. ¼ Sec. 30. Between the larger of these and the right bank of the river is another rapid descent about three feet, over boulders. The rock of the country, however, closely underlies, as shown by an outcrop a few rods west of the right bank.

At about a mile above "Cut No. 3" (N) on the grade of the Knife Falls railroad, mentioned under No 475, a creek crosses the new grade. At this place there is a cut in the rock on each side of the bridge. That on the south side is short and about four feet high, while that on the north side is about nine feet high, and extends about one hundred and twenty feet. In the south cut the slaty cleavage dips to the south, but is nearly perpendicular. In the north cut it is also nearly perpendicular but dips to the north. The sedimentary bedding is not discerned. There are belts of lumpy, white vesicular quartz, coincident with the slaty cleavage, which lenticular lumps are surrounded by a greenish slippery coating that often appears slickensided. These belts are sometimes wholly of quartz, and are continuous for some feet, and reach five or six inches in thickness. They seem to be the result of foliation coincident with the direction of the original sedimentation.

At the next cut which is about one-fourth mile further north, the depth is five feet, and the slaty cleavage dips slightly to the north. The cut extends about four and one-half rods. The rock is wholly slaty, and no sedimentary structure is observable unless it coincides with the slaty cleavage.

The road runs over water-worn boulders, with much corduroy, with no soil, nearly to the creek mentioned Then there is a filling, then occasional fills and shallow cuts in a little stony loam, with large boulders, the country being clothed with swampy varieties of trees.

Just beyond the point where the road strikes the drift bluffs of the river, another cut in slate-rock appears, the cleavage dipping north, as before, and including conformable layers or folia of white quartz, in varying quantities This is a firm slate, suitable for roofing, like much of it throughout the country. A short distance further are two small cuts in slate. In the northern one the slaty cleavage is different in different parts contiguous. The most of it dips toward the north, at an angle of about 45 deg., but in the midst of it are two belts that run from the top to the bottom of the cut, in which the dip is about 80 deg. toward the north. This cut is thirty feet long and six feet high. Further N. W. the road runs on a dirt fill on the slate ranges about a quarter of a mile. The rock can be seen and shows heavy bedding dipping toward the south about 45 deg., the slaty cleavage crossing the bedding with a dip of about the same amount in the opposite direction, the cleavage showing a *twist* out of the normal direction as it passes the joints from bed to bed. The whole aspect of these ridges is light-green.

At half a mile further is a long cut in greenish slates, perpendicular, or at the north end slightly dipping to the north, and at one-eighth mile further another small cut having the same features. Two more small ones appear before reaching a dyke which exposes a width at least of thirty feet. It appears on the N. E. side of the road and runs apparently, E. N. E. It is cut by the grade to the depth of about three feet, with a slate cut immediately south east of it. At half a mile further another dyke of similar character is seen near the Knife Falls. It is in place by the N. E. side of the grade, and was slightly cut in the grading. Its width and direction cannot easily be seen owing to the forest.

502. Gray doleryte, like No. 501, from the dyke last mentioned. One other cut in slate appears beyond the dyke about a quarter of a mile, but showing only on the north side, though frequent ranges of slate appear along the grade on both sides, rising six or ten feet.

503. Gray doleryte from the E. N. E. dyke before mentioned, apparently the same as No. 502.

504. Gray quartzyte holding slate-pebbles, as if conglomeritic, about two and one-half miles from the Junction on the grade of the railroad, situated between the "Cut No. 3" and the creek mentioned after No. 501. This quartzyte hardly has any cleavage, but shows a lamination in laminae about an inch thick, which indistinctly appear on shattering the rock by blasting. These have a high angle of dip toward the north, across the bedding, which dips south at about the same angle; and they are probably the product in this quartzyte of the same operation that caused the slaty cleavage in the slates. Although styled quartzyte, here as well as in other places, this rock also contains a large ingerdient of feldspar which in No. 504 is partly orthoclose. In others, the feldspar has been seen to be, at least in part, a striated feldspar. The slaty pebbles in this rock are rounded, and are often half an inch in diameter, and occasionally are two inches long.

They are fine-grained, and resemble the slippery coating that surrounds the quartz deposits mentioned under No. 501.

505. At the long "cut No. 3," mentioned under No. 475, there are several interesting features exhibited by the strata of the formation. This is nearly two miles north of the N. P. Junction.

1st. In the north end of the cut the slaty cleavage dips north about 80 deg., and in the south end it is nearly perpendicular.

2nd. In the southern portion of the cut is a change in the formation from slate to a gray arenaceous rock like Nos. 469, 478, 488, 491, 493, 497 and 504, though it is not conglomeritic like the last; and the slaty cleavage on both sides of this rock is conformable with its surfaces. This rock is represented by No. 505. It has somewhat the outward appearance of a dyke of igneous rock crossing the road in a zigzag course E 5 deg. N. It weathers nearly white and has a width of twenty-seven paces.

3rd. This rock, (505) has no slaty cleavage, but a coarse jointing. The slate beds on the north side dip N. and on the south side they are about perpendicular.

4th. On the east of the road, one-fourth mile distant, is a high hill of rock of this kind, and near the north end, on the west side, the ridges show a twisting in their strike, or a quaquaversal throw, so that the E. and W. slaty cleavage crosses them diagonally, the ridges bearing S. E. and N. W.

5th. Hence the slaty cleavage came after the tilting of the formation, and keeps its E. and W. course whatever the direction or amount of the dip.

6th. The hill of this rock, above mentioned, is east of the road less than one-fourth mile. It is an isolated knob rising about twenty-five feet above all the other ridges. It is about circular and five rods over, with a broad rounded top. It seems to be a sudden augmentation of No. 505 among the slates, and its connection with No. 505 in cut No. 3, can be traced connectedly. The course of 505 is about toward the rapid in the St. Louis, three quarters of a mile above the Big Island in the river near Thomson.

506. Large sample of slate, showing the slaty cleavage crossing the sedimentation, from one mile north of N. P. Junction, Knife Falls railroad.

Along the east side of the Big Island near Thomson, the ranges cross the river, causing rapids, and a descent of about ten feet in twenty rods, the most of it being in the lower ten rods. The river here runs against the strike, and the channel is narrowed as below

Thomson suddenly, to about thirty feet. The rock dips 45 deg. N. and stands up conspicuously along both sides of the channel, the slaty cleavage dipping 45 deg. to the south. There is then comparatively still water to about the middle of Sec. 31, (south of it a little), where the rock again causes rapids and a descent of six or eight feet.

507. Gray, slaty quartzyte, "just across the north channel at the head of the second rapids, on Homestead Island." (Terry.)

508. At the extreme upper end of Homestead Island, at the very point, higher up than any rock along there before mentioned; a gray quartzyte, with visible grains of quartz. (Terry.)

509. Some rods east of the head of Homestead Island, on the north side, about one hundred rods west of the head of the rapids that there run across to the other islands; a gray quartzyte. (Terry.)

510. Slate from the very foot of Homestead Island, below the rapids last mentioned. (Terry.)

The Chain islands, here so designated, are often known as Green Islands, from the man who preempted them. The "Grand Rapids," of the St. Louis begin one-half mile above Pine Island, and continue five or six miles. The water then is comparatively quiet to the mouth of the Cloquet. Just below its mouth is a large rapid. (Mallmann.)

Downward section of the red sand rock and shales at Fond du Lac.[*]

1. (443.) Red sand rock, quarried at Fond du Lac. This begins above the level of the railroad grade and extends downward through a thickness of (estimated) .... 50 ft.

2. Dark red shale .... 18 ft.

3. Shaly sand rock, less firm and siliceous than No. 1, (changes gradually to the next) .... 12 ft.

4. Red shale, with some sandy beds .... 30 ft.

Ascending the river, here it turns south, and as the dip is to the S. or S. E. the sand rock No. 1 is brought again into sight in the banks of the river at the extremity of the point, and in the opposite bank of the river. This is about one-half mile west of the state line. No. 4 again occupies the low river bank (north bank) above the point, after it turns west again, for ten or fifteen rods. It has some beds of light color, a few inches thick, such lighter colored beds being coarser. After a short distance of no visible rock, the underlying beds appear, viz.:

		Ft.	In.
5.	Fine conglomerate light		6
6.	Red fissile shale		8

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[*] Also see Nos. 443 to 449.

7.	Light colored coarse sandrock, or fine conglomerate		8
8.	Red fissile shale	4	6
9.	Fine conglomerate (light)		5
10.	Fissile red shale	3	
11.	Fine conglomerate (light)	3	
12.	Fissile shale, with green spots, some beds ripple-marked	14	
13.	Fine conglomerate		8
14.	Fissile shale		3
15.	Fine conglomerate	2	
16.	Fissile shale		3
17.	Fine conglomerate		4
18.	Fissile shale		4
19.	Fine conglomerate	1	
20.	Fissile shale	3	6
21.	Fine conglomerate	1	6
22.	Shale and shaly sandrock, with layers of light green, seen	14	

The bluff here is about twenty-two feet, (of exposed rock) for about thirty-five rods, below the creek that comes under "Bridge No. 1," and for about ten rods above, the opposite bank having no exposure.

		Ft.	In.
23.	Light red sandstone	3	
24.	Fine red conglomerate	4	6
25.	Shaly sandrock, red	10	
26.	Fine red conglomerate	3	6
27.	Red shale and shaly sandstone; makes a dark band	9	
28.	Lighter colored sandrock	8	
29.	Green shale		6
30.	Red shale and shaly sandrock	9	
31.	Fine conglomerate, with some thin layers of shale	4	
32.	Sandrock, mottled and striped with cross-sedimentation	5	

The mouth of the creek coming under Bridge No. 1, is on this sandrock.

33.	Fine conglomerate; the middle of this has pebbles an inch across, but is finer above and below	7	
34.	Shaly sandrock, with specular specks, as if micaceous or hæmatitic. This extends but few feet, and pinches out into fine conglomerate		8
35.	Fine conglomerate		10

36.	Fine shale		4
37.	Fine conglomerate	2	
38.	Shale		2
39.	Fine conglomerate, light-colored		6
40.	Sandstone, light-colored and red, with horizontal bedding; pinches out in fine conglomerate in twenty feet	1	2
41.	Fine red conglomerate with false bedding, passing below into a coarse, light-colored sandrock with false bedding	3	6
42.	Red, crumbling conglomerate, coarser below, with some pebbles of two inches	7	
43.	Shale, with green spots and some conglomerate	1	6
44.	Firmer, lighter colored conglomerate, inclosing beds of shaly sandrock which have cross-sedimentation.	3	
45.	Fine green and red shale		7
46.	Coarse shale	1	
47.	Fine red shale. Of this, but one foot can be seen at first; but as No. 44 strikes across the river forming a little rapid, and shows its place of beginning on the right bank, the section is easily continued on that bank. The stream here runs nearly at right angles to the strike, and a bluff rises about eighteen feet on the right bank consisting of Nos. 41, 42 and 43, or beds like them. Large blocks of No. 44 lie along the river, in the talus on the left bank. In these blocks are mainly pebbles of white quartz; then jasperoid and colored quartzytes; then arenaceous quartzyte of a red or pink color; then pieces of a greenish slate. and rock like the Thomson slate rock. The pebbles are generally under an inch in size, and the surrounding material is also a fine conglomerate	15	
48.	Coarse, firm, light-colored pyritiferous conglomerate, sloping gradually into the water. This includes lenticular spots of shaly sandrock, and of red conglomerate. For some rods the upper surface of this conglomerate forms the low shore and is washed by high water, dipping into the river at an angle of 8 deg. It then stops abruptly by a fault, and the shore is occupied by a red and spot-		

ted green shale like 47, of which the dip is more to the south. Where the conglomerate is broken off it is highly pyritiferous, and cemented into a compact rock, and at the very fracture the whole is changed and vitrified, making a firm greenish quartzyte. In the bluffs on the opposite shore, (i. e. on the right bank,) may be seen four separate faults crossing the red shale andsand stone beds (apparently 41, 42 and 43,) from the top to the bottom. This is just opposite the point of faulting of the conglomerate on the left bank. After the abrupt disappearance of this conglomerate the left bank in ascending the stream is found to be occupied by a low exposure of layers of green and red shale belonging to some higher portion of the section, while the right bank opposite is a bluff with an average exposure of ten feet of rock, consisting of red shale and shaly rock, with varying dip. All at once the coarse conglomerate rises again, but not so suddenly as it disappeared, and forms the shore to the place where the slate formation is found underlying it unconformably. Where the conglomerate reappears it seems not to be faulted, but bent and somewhat broken upward, the shale-beds above also being somewhat bent and compressed, though maintaining a green color where in contact with the conglomerate. The change of level is about two feet, and it is expressed on the opposite shore in undulations in the strata. It is about forty rods above this point that the slates first appear under the conglomerate, estimated.................................... 50 ft.

49. Coarser conglomerate, containing about the same materials as the last, except the layers of sandrock. Dips S. E. or S. S. E. 7-10 deg. The white quartz pebbles are sometimes six or more inches in diameter. Some are of gray, or even a black jaspery quartzyte, and some are pieces of the underlying slate, showing the slate must have hardened as slate prior to the deposit of the conglomerate. On the oth-

er hand it is to be noticed that a roughly slaty manner of disintegration passes upward into the conglomerate from the slates where the weather has acted on the two at that horizon, the pebbles and cement falling off in slabs or lumps that are elongated in the direction of the slatiness of the slates and parallel with them, as if the cause that operated to produce the slatiness had taken effect since the deposition of the conglomerate, and had resulted in a similar structure in the overlying rock. In this conglomerate are pebbles of gray and black jaspery quartzyte which much resemble the great quartzyte of the boundary line, seen at Pigeon Point, and really can be referred to that formation. This seems to imply that that formation, which, with its jasper beds overlies the slates, should come in between the conglomerate and the slates, but for some reason is wanting here. The conglomerate at Grand Portage Bay may have that relation. (V. No. 254.) In some places a layer of green shale lies between the conglomerate and the slates. It is a foot thick. The coarse pebbly quartzose conglomerate has an estimated thickness of.. 100 ft.

The overlying finer conglomerate is often red.

Total observed thickness of the Potsdam at Fond du Lac is therefore.................. ...... 412 ft. 4 in.

By making a general trigonometrical calculation, with an average dip of 6 deg., and a hypothenuse one and one-half miles long, from Chamber's quarry to about half way between bridge No. 1 and No. 2, where the conglomerate begins, the thickness of the red sandrock and shale is found to be 883 feet. To this must be added the coarse conglomerate.

From Duluth to Silver Islet and Return.

511. At a point in the bed of Miller's Creek, just above the highway bridge near the ¼ section line of 32 T. 50, 14, 424 feet above Lake Superior, this sample was obtained. The rock, which is gabbro associated with fine red syenite, extends indefinitely up stream. It is jointed conspicuously N. W. and S. E. like a dyke. It is in some

places speckled finely with red feldspar, and in others it is crossed by veins of red feldspar, some being an inch in width and others very thin, somewhat resembling the rock at the old quarry of Maj. Newson at Duluth. Below the bridge is a rapid descent over rock of the same sort, in which the formation shows a coarse bedded structure, and dips E. at an angle of about 25 degrees. The left bank of the creek rises perpendicular about 23 feet, and the right slopes up gradually with the dip of the rock. The summit of the gap through the hill range is 607 feet above lake Superior. This is about a mile beyond the crossing of Miller's creek.

512. N. E. ¼ Sec. 25, T. 50, 15. Along the Herman town road occasional exposures are seen, rising above the rolling surface of gravelly red clay, of which this is a sample. It is a heavy, gray trappean rock with so much magnetite as to disturb the needle. Land of Peter Benson.

513. Rice Point gabbro, from a cropping on the N. W. ¼ N. E. ¼ Sec 27, T. 50, 15.

514. S. W. ¼ Sec. 22, T. 50, 15, (near the center of the quarter), land of John Mallmann. Here is an unusually magnetited bed of the rock of the country. It can be traced along about 200 feet, having a width of about 20 feet, as exposed. in low ground, bearing E. 10° N. It lies 5 rods to the north of another series of croppings of rock like No. 513. On the opposite side of a little creek, north of this number, is also a line of outcrop of rock like 513. No. 514 controls the needle entirely. It is dark, but specked with porphyritic crystals of labradorite. The center of Sec. 30, T. 50, 14, is the highest point in the hill-range, on the Herman town road, and is 747 feet above lake Superior.

Reviewing the rocks between Minnesota Point and Kinichigaquag creek one is compelled to the conclusion that they are mainly sedimentary; *i. e.*, in the sense that they were deposited in water and in that way received their stratified arrangement. They dip S. E. They also exhibit some of the characters of igneous rocks, viz.: their amygdaloidal structure, their color, their hardness, and an occasional wrinkled surface, that was formed by the fluid condition of the rock when flowing down an incline. The last characteristic particularly seems to prove that some of the beds were molten. On the other hand they show nearly all the characters of sedementation—parallel lamination, dipping in a constant, or nearly constant, direction, cross-stratification, variation of texture and color as well as mineral composition in the direction across the bedding. Whether they lie, stratgiraphic ally, above or below the sandrock at Fond du Lac is solely a matter of speculation, so far as the evidence here has any bearing.

There is a red sectile rock (Nos. 18, 19 and 30) that shows conspicuously along here, between Duluth and Chester Creek, which may have been driven by semi-fusion, and by igneous injection into the openings, &c., of the lower part of the igneous rock that forms Rice Point, and the hills back of Duluth. This is on the supposition that the Rice Point rock lies over the Chester Creek bed, and is in keeping with the fact that a red feldspathic rock occurs in patches in Duluth, and is in seams in the Rice Point rock at Newson's quarry. In that case the point of outflow of igneous rock was further to the northwest, and the lava ran over the broken beds toward the S. E. Before the full force of the igneous overflow is met in passing N. E. along the coast, the sedimentary beds occupy the coast except where, by dykes, or by interbedding, or by local outflows, the trap rock is found in its place. This indicates that during the period of deposition the igneous disturbances were going on, and that the semi-igneous nature of the beds may be due partly to the proximity of the igneous vents which would not only give an occasional flow of truly igneous rock, but would furnish a sediment quite different from an ordinary oceanic deposit. Ordinarily the sedimentary beds have a reddish color, but in the neighborhood of Chester Creek, and in Duluth some of them are greenish. The trap-rock seems to take a bluish green color along the shore. Occasionally a hardening of the sedimentary beds is produced so as to form a rounded point or promontory, or a sharp rocky point. Without such hardening the sedimentary beds usually are less durable than the trap-rock. In some cases, still, there is so close a mingling of igneous and sedimentary characters it is wholly impossible to decide, on the spot, whether a rock be igneous or not.

515. At Sucker river (V. No. 89). A fine-grained igneous rock, which crosses the mouth of the river. But it runs N. E. instead of N. 5° E.

516. Forms the bed of the stream, and appears like a bed of lava, being not jointed regularly, but smooth and massive, with pot-holes. This disintegrates into globules and rots to a great depth before falling away. It is heavy, dark green, and almost black when wet. In the stream are many pieces of prehnite-amygdaloid with a little native copper. These must have come down the stream from a belt which runs from French river southwesterly, back of Crystal Bay, and N. E. to Sucker river.

East of Stony Point, which is the east point of Sucker bay, the rock forming the immediate shore is an overflow of heavy dark trap which extends to Knife river; but within the bay east of Knife river are amygdaloids and purgatories for a mile and a half. Thin clay hides the rock, except occasionally, to the west point of Agate bay where begins about the same series of amygdaloids and non-amygdaloids as seen near Knife river, extending round the point and along the west side of Agate bay. Thus the rock from Stony Point to Agate Bay is all igneous. There is a similar alternation on the west side of Burlington Bay. (V. Nos. 94–102.)

517. Fine-grained trap, bedded, from the foot of the high bluff at the north of Gooseberry river. (V. 108.)

518. Trap-rock, top of the low bluff at the south end of the beach at Gooseberry river, containing amygdules of chalcedony. Furnishes some of the pebbles, and all of the agates of the Gooseberry beach. This rock slopes into the water, and where it is constantly under the action of the waves, and partly decayed, it is reddish, like the pebbles, but the pebbles mostly come from another bluff.

519. Agates, taken from the rock at Gooseberry river. At Gooseberry river is a high beach (25 ft.) of red gravel, extending from rock to rock (from 517 to 518), facing east, thrown up by the counter action of the current of the river against the easterly storms on the lake, which not only sweep the pebbles along the beach toward the west, but prevail with great violence in the spring and fall months. It is 300 paces long. In the red gravel of the beach are numerous chalcedonic agates, derived from the rock of the place. The bluff at the north end of the beach is about 75 feet high, and at the south end it is about 10 feet. In each case the rock slopes E. S. E. down to the lake, and below the water. They were once probably connected, forming a continuous sloping surface of trap-rock. The lower part of the bluff at the north end is bedded, and more jointed, but is fine-grained and firm. It is probably igneous, and seems to contain considerable chrysolite. The upper part contains chalcedonic amygdules, and is trappean. It decomposes in globuliferous parts, and is spotted by them before decay, the general color being a dark or bluish green. The whole bluff is trap and 75 feet thick. The beach is red with a few blue pebbles. The red gravel is finely amygdaloidal, and cannot come from the trap. The globuliferous decay is not noticeable in rock at the east of the bluff, near the water, perhaps because the erosion wears it away too fast.

The lower part of the high bluff at Gooseberry river, a short distance east of the river, is amygdaloidal with laumontite, and crumbles out faster than the overlying trap, causing the fall of large blocks from the top of the bluff.

The beds 517 and 518 occupy the coast exclusively (except one or two amygdaloidal beds,) with short intervals of red pebbly beach, to about one mile from Splitrock river, when a bluff rises from the water in a bay (No 110) and continues eastwardly. This bluff is the source of the red pebbles at Gooseberry beach. It is finely porphyritic with red feldspar, and seems also to have fine grains of calcite and quartz, as well as a few green amygdules. These, weathering out, produce a pitted water-worn exterior. The rock does not crumble, but goes to pieces in a multitude of small fragments which strew the beach and make the gravel. It greatly resembles the rock at Crystal bay (No. 78) and also the Palisade rock (Nos. 138 and 139), but is less firm than the latter. Its disintegration in angular bits in the bluff, by frequent divisional planes (not properly a jointage) is exactly like the Crystal Bay rock, but here it contains no large geodes of calcite, as there. It has the appearance somewhat of underlying the trap of Gooseberry river, but it actually overlies it.

520. Sample of the above rock, one mile west of Splitrock river.

520. A.—Sample of calcite-laumontite, from a vein in No. 520.

The westerly end of this bluff seems to show that it rises from under the rocks 517 and 518 with a strong dip toward the W. S. W. perhaps 40 degrees, but this westerly dip is not due to sedimentation tilted in that direction, but to a transverse jointage. It is so intimately jointed and angular that the original bedding, by which a deviation of dip is to be ascertained, is nearly obliterated.

521. Is an irregular thrust-up rock, appearing in the beach near the west end of 520. Its bedding is distorted. It almost appears conglomeritic, but the lumps and nodules that appear in it are due rather to crystalline aggregations, imperfectly formed. Some of its firm parts appear like the metamorphosed greenish quartzyte seen under the conglomerate near bridge No. 5 above Fond du Lac (V. after No. 510, in the *Section of the Red Sandrock at Fond du Lac* (Sub.-No. 48). But in the midst of this green are thin red (vitreous?) laminations that resemble in form, but not in color, the translucent streamed(?) interlaminations seen in No. 140. It is essentially a part of No. 520, but modified by some closely contiguous igneous agent. (V. 816).

Toward the east the bluff (520) shows horizontal bedding one, two and three inches thick, and the red rock passes inland among cedars, balsams and pines. At nearly the same point a lower trap-rock appears in the beach, being the same as that forming the little island opposite the bluff, 520, since it can be traced connectedly from the little island—by the shallow water—directly to the the foot of the red bluff. This lower trap holds a gray amygdaloid about 8 feet thick, and its lower beds run in the gravel beach, nearly to the Splitrock river, the chief exposure being just at the point, and 15 feet high (V. Nos. 111 A & 111 B). The red pebbles at once disappear, except that a few, mixed with the gray, are seen even at the mouth of the Splitrock, brought down the river and distributed westwardly. Where this lower trap appears in the little island it is agatiferous, at least has concretionary masses of quartz a foot or more in diameter, as well as other dark masses, 3⁄4 ft. in diameter. The geodic quartz cavities have few amethystine crystals. In this respect this trap bed seems to resemble the trap at the top of the bluffs at Gooseberry, instead of being another layer. In some places this is finely amygdaloidal, on the island, but generally heavy, compact, angular, and dark colored. These parts are irregularly mixed, and sometimes surround each other, as if in concretions, or as if one had been mixed in the other as a matrix.

Splitrock Point exhibits a novel and interesting geology. While the large feldspar mass seems to be in place, and to have furnished the smaller pieces embraced in basaltic trap toward the S. E. and E. it is highly probable that it is itself a transported mass. The oblique basaltiform structure of the trap shows it was molten and the feldspar was not. The feldspar is not basaltic, only coarsely jointed. This feldspar rock has a close resemblance to the Rice Point granite. It seems also to be older than the sandstone and conglomerate beds along here, and not to pass into the trap layers that are so conspicuous along the shore. There is a constant dip toward the S. W. in passing along here, and finally the feldspar rock seems to come to view as if lower than all. There is trap near the water, at the base on the east side. This continues, and shows oblique basaltic structure which slopes N. E. and a bedding that dips S. W. (V. 112 and 113.)

Immediately across a little bay east of Splitrock Point, and on the north side of the bay, at the foot of a high bluff (175 ft.) of Feldspar rock which stands a little inland, is an exposure of a dark-red, frequently jointed, rock. It is somewhat amygdaloidal, and especially near the top of the bluff, and seems to be a slightly altered condition of No. 520. It shows only a short distance (6 rods) and dips N. N. E. about 30°. It is darker red than No. 520 on fresh fracture, but the joints that give color to the bluff are lined with lighter red. It is probably also one of the shale beds of the formation, if not the lowest.

It is cut square off, and is immediately replaced by the obliquely basaltic trap (No. 524) which embraces masses of feldspar rock. Here the trap rises 50–75 feet above the talus of fallen pieces as the bluff extends east.

522. From the foregoing reddish-brown rock near its point of contact with the basaltic trap, near the top of the bluff, in the bay first north of Splitrock point. It here becomes darker, denser and firmer, and also amygdaloidal, bringing it to the characters of the rock that forms Two Harbors, the next point east. This seems to be another condition of 520, or beds like No. 520. In thin-sections it seems to be identical with the Two Harbor rock.

523. From the base of the same bluff. Similar rock, but more red. The Two Harbor rock is No. 117.

Just beyond Two Harbor Bay, (east) the relative superposition of Nos. 522 and 523, and their relation to the Two Harbor rock as well as to the Feldspar rock, can be seen. A feldspar bluff rises perpendicularly from the water about 125 feet. On the west of this bluff and in immediate contact with it, rises a basaltic trap bluff which is composed of the rocks.

524. Is a basaltic dark trap, 75 feet thick—underlain by 522, 523 and the Two Harbor rock, in the order named—the Two Harbor rock rising but little above the water. (V. No. 112).

Numbers 522 and 523 here show a sedimentary structure very evident, but it is in patches, and alternates irregularly with patches of laumontitic amygdaloid.

525. Sometimes a sandy sedimentary rock is in immediate contact with and surrounds patches of the amygdaloid. In the sandrock, which is of a light color, blotched with red, are impressions of fucoids. (V. No. 817).

On the east of this high Feldspar point there is a huge pudding stone of trap and feldspar for a short distance, and then under it a short exposure of No. 520 just as the bay begins. This last rises and runs inland, and the Two Harbor rock makes the immediate shore through the bay to the third high point, which is composed of a sudden upheaval of both the 520 and the Two Harbor rocks, the latter being basaltic and making the high point. (V. 119).

526. The knob of rock at the west side of Beaver Bay is of a crystalline red rock, feldspathic and firm. The green trap embracing the feldspar masses abuts suddenly upon it, from the west, and so ceases. This probably is the same rock as 119, and 520.

527. Sample showing the union and welding of the feldspar mas

at Beaver Bay with coarse trap inclosing it. It is not thus welded generally, so far as visible, but is loosened fron the trap.

528. Slaty, gray quartzyte, at the mouth of Beaver Bay creek. These samples are from the rock at the very mouth of the creek. It also runs back from the creek toward the west. Its abrupt and isolated outcrops will not permit any satisfactory identification of its horizon or its place in the shore series. (V. 127 and after 816).

529. (No. 1 to No. 6). Series of changes from trap rock to soil, Beaver Bay:

(1). Unchanged traprock, heavy and coarsely crystalline.
(2). Iron-shot and jointed trap-rock.
(3). Showing incipient decay.
(4). Crumbled trap-rock.
(5). Gravelly, earthy soil.
(6). Loam, soil and turf.

These are produced by the rotting of the trap-rock of the country, on the promontory where no other ingredient contributes to the soil.

530. Finer, dark trap, of the same general character as that which covers the country, but finer grained, magnetited, and perpendicularly basaltic, having a coarser grain in a dyke-like belt (2½ feet wide) running E. and W. This rock contains patches of red rock like No. 526 and within two rods, after a short interval not exposed, the rock No. 526 is seen in full force forming a bush-covered bank. The patches are as fragments or boulders, generally, but some patches do not appear like transported masses, but like dykes and veins. This is from the bay one-half mile west of the knob which is represented by 526.

531. Sample of the above narrow dyke-like belt, which is similar to No. 529, but seems to contain free quartz. The general dip of the rock 528 is to the east, as seen in passing inland, and along the road to town, so as to throw it, if continued, under the rock of the promontory.

532. Reddish, and sometimes greenish, trap-like rock, surrounding, or embracing pieces of the feldspar at Beaver Bay. This rock is similar to rock No. 526, at least in some of its parts. The feldspar masses have the appearance of having been carried in this rock, or to have been *in situ* when it was deposited as a sedimentary rock, and subsequently to have suffered the metamorphosing forces with it. (V. No. 816.)

533. Rock of the great palisades. (V. 139.)

At the point that encloses the beach of gravel at Little Marais, a red pebbly conglomerate is seen running under the basaltic trap (No.

160) that makes the point, but separated from it by about two feet of amygdaloid that bears white thomsonites. This conglomerate must be that seen a short distance below Baptism river (155). The Sawthuth Hills, a spur of which runs out at Baptism Pt., run here still further back from shore, so as to bring the lower beds of any rock involved in them, at the shore along Little Marais. This conglomerate is also probably the real rock underlying the long stony beach extending for a mile or more above the point that is on the west of Little Marais.

East of Little Marais, for a couple of miles, the coast is formed by the Little Marais trap, sloping rather steeply into the water. The underlying amygdaloid is exposed also. The conglomerate is sometimes converted into an amygdaloid, and its true original character is hardly discernable. There are, however, red blotches that indicate the original pebbly character of the whole.

These three parts:—

1. Basltic trap-rock.
2. Reddish amygdaloid.
3. Reddish conglomerate.

make a jagged coast, with sharp points and little bays, almost continuously rocky, to about a mile and a half or two miles east of Manitou river. They sometimes rise 40 feet perpendicularly from the water. There is a little harbor from S. W. winds about one mile east of Manitou river. There seems to have been one grand igneous overflow here, just after the conglomerate, which is about 70 feet thick. The conglomerate itself is amygdaloidal, and the whole is red. The pebbles also are amygdaloidal, and generally less than an inch in diameter, but some are 8 or 9 inches across. The amygdules are calcite, laumontite, and white thomsonite. Sometimes beds of conglomerate and amygdaloid not conglomeratic alternate two or three times, and sometimes they blend or cross each other, showing no widespread variation in the nature of the conditions under which the whole was deposited, but rather indicating that at other points the whole would be found to be a conglomerate.

534. Samples of red amygdaloidal conglomerate from 1 mile east of Manitou river. The same is seen at the mouth of Manitou river. At this point the strike of the trap passes some distance inland, forming a spur of hills that rise several hundred feet back of Pork Bay, with low tillable land along the shore.

535. (V. No. 193).

Thomsonite amygdaloid, from Terrace point, near Good Harbor Bay.

535. A.—Thomsonites, picked from the rock at Terrace Point.

535. B.—Thomsonites, &c., gathered from the beach at Terrace Pt. These pink thomsonites seem to have some of the characters of edingtonites, as in a weak H. Cl. solution they give a precipitate with sulphuric acid, which must be sulphate of baryta.

536. Samples of the basalt rock, at Grand Marais, many of the small pieces being sections of the smaller basaltic columns.

537. Bedded trap, from the west side of the point on S. W. ¼ Sec. 10, T. 61, 2, E. Similar to the trap at Grand Marais. (V. 211.)

538. Red rock, similar to the rock of the Great Palisades. This is the first rock east of Cow's Tongue Pt. in the bay. (V. 212.)

The rock of Fish Hook Point (No. 213) lies as an overflow, and is visible under the water toward the west for some distance, cut also by dykes, some of which appear on the shore.

539. Brown trap, with chlorite amygdules; similar to, if not the same as the Fish Hook Pt. rock, from a short distance west of the mouth of the Brulé river, near the river. (V. 220.) There is no rock at the mouth of the Brulé, but a remarkable high beach, which shuts in a lagoon on the landward side. The pebbles composing it are of mixed character, some are red, from the red rock of the country (538), and some are blue or green, from the fine basalt or dykes, with amygdaloid and porphyry pebbles.

540. Coarse doleritic trap; a mile and a half east of the Brulé river. This rock sets in immediately east of the Brulé (No. 221), and forms the coast nearly continuously. At the point where this sample is got there is a little eastward facing bay, and a gravelly beach, but the same kind of rock is found on the east of the bay. This rock is light gray under the friction of the beach-gravel, but is black with rough lichens when washed only by the water. This rock seems to lie under the red rock which disappeared under the lake on the west of the Brulé. It continues to Horseshoe bay, on the west side of which is a basaltic bluff like that on the west side of Sickle bay. In the interval between these two bays the rock is occasionally interrupted by short re-entrant bends in the coast, where stony beaches largely made of the trap of the country are found, but the most of the distance is rocky and generally less than ten feet in height. The bluff on the west side of Horseshoe bay is 60 or more feet high (V. No. 228).

There is a high range of hills that run across the head of Double bay, rising apparently from the coast in spurs, one from the west side of Sickle bay, and one from the west side of Horseshoe bay. This range is short, as it can be seen for only three or four miles. The top is of the rock No. 540, which probably lies under the red rock and over the Grand Portage slates and quartzyte. It seems to be the same as the basaltic rock that caps the hills of slate and quartzyte along the international boundary. The beach at Cannonball bay is of rounded stones of all sorts, but a little sandy patch is covered with iron sand, derived from No. 540 inland. The rock 540 is seen to run below the E. Palisades, or the "red rock," so-called, judging by the general topography and the prevailing trend of all the beds. As the trend of 540 passes inland, a range of hills rises several hundred feet, extending N. E., the "red rock" occupying the low land between them and the lake, cut by heavy dykes of basaltic green trap. The Eastern Palisades have a short exposure just west of the mouth of Red Rock creek, rising gradually up from the water to about 25 feet, and then breaking off square and suddenly on the land side. They extend perhaps 150 feet along the coast in this manner, but are wider in a low exposure half covered with beach pebbles toward the west, at least 50 feet. The dip here is toward the southeast, but at Red Point, about a mile and a half further east, it dips S. W., at an angle of 25° or 30°, showing the underlying trap again on the east side. Between the Palisade rock and rock 540 seems to be a firmer trap rock, or rock resembling the Two Harbor rock, which appears in the bay east of Red Point, where it is cut by dykes.

The high range of hills that culminate in Mt. Josephine are made up largely of the rock No. 540.

At Grand Portage Island is a section of the rocks just lower than the "red rock," which here seem to have been preserved and thickened, as well as hardened, by local inflows of trap. The island itself is elongated east and west, but not much. It is rudely elliptical in horizontal form. Its highest parts are at the eastern end, where the bluffs, that face north are about 100 feet high. There is a gravel spit that is formed by the joint and opposite action of waves from the east and west as they whip round the sides of the island, jutting northwest from near the middle of the north shore, and from it a shoal extends still further in the same direction. The beach shows foreign drift-boulders, as well as many varieties of rock from the island itself, among the former being various porphyries and granites. The only piece of "Winnepeg limestone" found on the "north shore" was found on the northwest side of this island, though a fossiliferous piece of chert was picked up at Good Harbor Bay. There are also pieces of dark, hornblendic rock, and of micaceous schist that do not occur in the rocks forming the island, as well as a good many fragments of the "red rock." These last are so angular, and also so frail, that they seem not to have been far transported. They are perhaps from below the water of the lake south of the island, and are thrown up and brought ashore by ice and waves. Some of the "red rock" is rather sandy, and spotted with light brown spots, like the shale and sandrock of the St. Louis river, the spots being pink in the dark red. Some of the fragments are confused in structure as if crumpled, and are amygdaloidal; and some are harder and porphyritic, resembling the typical Palisade rock. The main beds of the island dip to the S. S. E. at a varying angle, and have an exposed aggregate thickness of 134 feet, viz:

541. At the N. E. corner of the island a dyke 10 feet wide cuts the quartzyte and conglomerate, running E. 10° N. by needle, without displacement of the bedding. It is a very fine-grained black, or blue-black rock.

542. A layer of trap like No. 540, which on the east shore is basaltic, rising about 12 feet. This is stratigraphically the highest rock in the island.. 14 ft.

543. A chalcedonic amygdaloid, though the chalcedony and calcite amygdules appear specially at the south east end of the island, may be.................. 20 ft.

544. A curious, dark, heavy, globuliferous trap-rock, disintegrating readily, the hard globules, which are of stony structure (not minerals) and nearly black, rolling out like shot, or bullets, and covering the ground after the rest of the rock has rotted to a greenish soil. The rock itself is chloritic and dark green. This is in a belt crossing the island east and west, appearing some like a dyke, but is in reality probably an overflow like the next underlying. Indeed it seems to pass into the next, in some places, showing it is only a local phase of a larger bed. It is the last to run under the water at the west end of the island, and at the east end it is the topmost rock in the bluff. Its thickness may be................................. 20 ft.

545. A bed of fibrous green trap, passing through the center of the island and forming its highest parts, and also producing a long sloping beach on the S. E. side running under the chalcedonic amygdaloid. In the center of the island it appears like

a burnt scoria or slag, due perhaps to the effect of Nos. 543 and 542, though these have been removed in the central part of the island appearing now only along the south and southwest shores . 35 ft.

546. Sandrock, even-grained, rather fine, light colored, but of a pinkish and purplish cast, firm and compact in regular beds of 10 to 18 inches thick..... 8 ft.

547. Another bed of trap, like the dyke No. 541. This is sometimes brecciated, or finely and irregularly jointed, with white nodules of saccharoidal calcite.. 36 ft.

547A.—Nodules of saccharoidal calcite from 547.

548. Quartzyte, sometimes with mica specks between the beds, of a dark color, generally striped with red and brown, some of the beds being brown-red, with thin laminations, and some show ripple-marks.. 5 ft.

549. A breccia, or conglomerate-breccia, the cementing rock being a quartzyte like No. 548, or arenaceous like a grit.. 16 ft.

550. Near the dyke (No. 541) is another which cuts the beds, running E. 10° N. This is a little south of No. 541, and is 34 feet wide sloping a little to the north.

551. Another dyke crosses the S. E. corner of the island in direction N. N. E. by E. and is of a coarse doleryte. It is probably due to these dykes that the island exists, as by their intersection their effect has been to harden the beds, and to present toward the east the apex of a triangle to ward off the waves of the severest storms.

There must be, besides the foregoing, also the following nearly associated with them—although they do not appear any where in the bluff soft he island—since they are seen in fragments on the beach.

(a). A true pebbly conglomerate, or coarse grit, nearly white or of a light color.

(b). A true conglomerate like (a), but containing pebbles, at least crystals, of red feldspar.

(c). A conglomerate with few pebbles, but a green aluminous, or chloritic cementing material.

The true place of these cannot be ascertained, but (a) is probably near the bottom of No. 546, as well as (b), and (c) resembles the shale and sandrock cut by dykes in the bay east of Red Point, (Nos. 232 and 235), which must be just under the "red rock," and so probably belongs near the top of, if not wholly over, the foregoing section. Indeed it must come, in that case, from the lake, below the water.

A generalized section of the alternating beds of the formation as they occur along here would be as follows in descending order:

1. The Palisade rock, or the "red rock."
2. Green shales, &c., in the bay east of Red Point, (Nos. 232, 235, 238 and 239).
3. Layer of trap like 540 (No. 542)........................ 14 ft.
4. Chalcedonic amygdaloid (No. 543)........................ 20 ft.
5. Fibrous, green trap striking E. and W. through the island and forming its highest parts. In spots it is globuliferous with hard, dark, strong, shot-like pellets about ¼ in. in diameter, (Nos. 544 and 545),........................ 35 ft.
6. Even grained sandrock (546)........................ 8 ft.
7. Trap bed, finely and irregularly jointed, with nodules of white saccharoidal calcite (No. 547).......... 36 ft.
8. Quartzyte (No. 548)........................ 5 ft.
9. Conglomerate (No. 549)........................ 16 ft.
10. The rock No. 540, forming the great trap covering of the quartzyte hills at Grand Portage, 50 ft....... 250 ft.
11. The slate and quartzyte terraces seen in the hills at Grand Portage, generally and along the international boundary as far west as the west end of Gunflint lake(estimated)........................ 400 ft.
12. The jasper and iron ore beds of the Misabi, and southeast of Vermilion lake.
13. The micaceous and chloritic schists and slates of Vermilion lake and the Dalles of the St. Louis river.
14. The mica schists, granites and syenites of the region north of Gunflint lake, (V. after No. 753).

This takes no account of the great labradorite range, which in some places forms the Mesabi, nor of the iron ore deposits of Mayhew Lake, because they are apparently included in the rock Nos. 258 and 540, or in an immense outflow of molten matter at a date somewhat earlier. (V. Nos. 695 and 816.) Nor does it mention the conglomerate of Ogishkie Muncie lake, because that is apparently an incident of the slaty and talcose beds included in Sub. No. 13, nor the red granites of the region of Brulé Mt. because they are probably a modified condition of the Palisade rock.

Nine dykes are seen crossing Hat Point on the west side of Wauswaugoning bay, cutting the slates and quartzytes near the water, running a little northeasterly varying from 3 feet to 70 feet wide. A heavy dyke of basalt runs along the head of the bay terminating the bay in that direction. It cuts the slates, hardening and solidifying them so that their walls, broken and oblique, sometimes stand alone, appearing like other dykes. It runs on into the "Cypress Swamp," of Norwood, and appears to be the same that forms little islands in the south arm of Pigeon Bay.

552. Plumbaginous quartzyte, Pigeon Pt., near the trail to Parkerville. Sec. 32, T. 64, 7. (V. No. 270.)

553. Quartzyte, near the portage trail, at the north shore.

The Grand Portage range of hills laps over another as it approaches Parkerville, and also gradually dies out, the Pigeon river coming through the low spot in the valley between them. The other range runs along the north side of Pigeon Bay, in Canada, turning a little northwest as it approaches Parkerville.

554. The "Two Harbor Rock," (?) from the east end of the island most easterly, separating Washington Harbor from Grace Harbor, on Isle Royale. This is more coarsely jointed than the Rock at Two Harbor, and has somewhat the appearance of an imperfectly basaltic dyke, but as it develops a few rods further north it appears as an overflow, t least it lies on other trap and amygdaloid. It forms a little boat-harbor where fishing shanties are erected. It is at least a fine-grained brown, trappean rock, and in this section seems to hold no free quartz.

The south side of Grace harbor is of pebbles and stones, the pebbles derived from a red conglomerate that occasionally is seen in the beach, but which in the S. W. corner of Isle Royale is finely exposed. This red conglomerate is coarse, some of the stones being over a foot across, and dips for a long distance gently toward the south and southeast. On approaching the point in the coast nearly south of Siskiwit bay, the dip increases, and still more toward the entrance to Siskiwit bay. Above the conglomerate appears a red sand-rock, nearly a red quartzyte, resembling rock No. 548 of Grand Portage Island. This has regular bedding, cut into cuboidal or rhomboidal blocks by divisional ripple-marked with some softer, shaly or hæmatitic laminæ, and with hæmatitic lumps of shale more or less inclosed in the mass of the beds themselves. Some of these beds are about 30 inches in thickness, and some are less than an inch. These beds are firm and durable, blackening under the waves like a trap, to which at a distance they have some resemblance. Its dip, color and bedding recall the red quartzyte in S. W. Minnesota, but it is rather less siliceous than that. In the same manner, however, it overlies a coarse pebbly conglomerate, which in the same way indicates its relations to the red quartzyte of Grand Portage Island and of Pigeon Pt. peninsula (No. 290), as well as to the red sandrock and shales of Fond du Lac.

At Grand Portage Island it appears that a trap inflow separates the red sandstone and shale formation into two parts, only a small portion being below the trap, the greater portion being out in the lake further south, while on Isle Royale no such trap overflow divides it.

555. Red quartzyte or sandrock from Siskiwit Point, Isle Royale (the point that encloses Siskiwit Bay). This has been quarried further west in the bay, on the south shore, and advertised in Detroit under the title "Isle Royale Brown stone," by Buchan & Co., 117 Griswold St. West from the point, on the south shore of the bay this rock stands out prominently, dipping from 10 to 20 degrees to the south, forming a jagged and rocky coast, having a perpendicular rise from the water the most of the distance to the first bay on that side. Altogether there must be three or four hundred feet in thickness of these beds, involved in the point that shuts in the bay, but they actually rise above the lake but about 60 feet. The former beds do not lie immediately on the coarse conglomerate, but are separated from it by a shale, which appears at the point forming the first little bay west from Siskiwit Point. This red shale, though appearing rocky, breaks with a sectile fracture, into a great many small pieces when struck with a hammer. It is bedded like the quartzyte, but is intersected by numerous *gashes*, or gash veins, which are of a very different color, being greenish, or greenish gray, and about one-fourth to one-half inch wide and but a foot or two in length, running nearly north and south as they appear on the weathered surface, though some are irregular in direction and follow other cracks. These gashes seem to have been caused by the change produced in the rock by the gases escaping through fissures produced by the disturbance of the formation, rising from heated regions below, rather than by the downward effect of heat from trap overflows. This shale is the most destructible of the whole formation, and probably is

mainly the cause of the low swampy land that intervenes between the head of Siskiwit Bay and the S. W. corner of Isle Royale. The conglomerate itself is under the shale, and is more durable.

556. Red, hardened shale, south shore of Siskiwit Bay, as above described.

The same red conglomerate that forms the S. W. end of the island also forms the north coast of Siskiwit bay, and is the rock containing the copper at the Island Mine, which is near the head of the bay.

557. Cupriferous conglomerate, from the Island Mine, Isle Royale near the head of Siskiwit bay; this is also argentiferous.

557 A.—Variety of pebbles from the conglomerate, 43 kinds.

557 B.—Stamped rock and copper. Island Mine.

558. Amygdaloidal dark trap, near the stamping mill of the Island Mine, Isle Royale. This is near the creek coming through the location.

558 A.—Wernerite, from 558. This mineral has the following chemical and blowpipe reaction:

Blowpipe Reaction of No. 558 *A.*

Fuses at 2 or 2.5, with intumescence.
After fusion gives a quick alkaline reaction when moistened on turmeric paper.
Gives no sulphur reaction on silver.
Salt of Phosphorous bead shows a skeleton of silica.
H Cl. solution does not gelatinize.
H Cl. solution gives no precipitate with Ba Cl.
H Cl. solution gives slight precipitate with NH_4 HO.
In closed tube, B. B. gives no water or the slightest trace only.
Fused and moistened with H Cl. gives a copper flame.
Some fragments effervesce slightly in H Cl.
H Cl. solution gives no precipitate with S. O.
Hardness 5 or 6.
Color, light, lilac-gray, or a pinkish white, or white.
Structure, massive, or fibrous and divergent, the rays becoming separated, acicular, tetragonal crystals.
H Cl. solution does not give titanium reaction with tin.
Borax bead is slightly yellow from iron.
H Cl. solution does not gelatinize even after boiling.
After fusion the H Cl. solution gives no jelly.

These characters bring the mineral between Wernerite and Cancrinite. The occasional effervesence allies it with Cancrinite, but its color and the tetragonal form of the fine crystals show it to be Wernerite. The effervescence is probably due to something attached to the fragment. This mineral is in amygdaloidal cavities or irregular openings in the trap, some of the masses being two inches or more across.

558 B.—In 558 are veins of a green rock which is heavy and amygdaloidal with what also appears like Wernerite.

559. Trap that immediately overlies the cupriferous bed of conglomerate, at the Island Mine.

560. Trap that forms a bed under the cupriferous conglomerate, known as the *Greenstone Range* where it rises to the surface further north.

561. Decayed rock, or volcanic ash, so-called by Norwood, from the cupriferous bed of the conglomerate.

At the location of the Island Mine, a beach, apparently formed by jamming of ice, is 95 feet above the water. The road from the dock to the mine runs on it some distance. There are other beaches or ridges, lower, some of them running somewhat transversely across the intervening space. These are short, and more evidently due to the jamming of ice. The 95 feet beach is the upper limit of a strictly pebbly surface; above that the surface being one of loam and gravelly clay, or a stony loam, so that there may be said to be a soil. Below the top of this ridge, as well as wholly over it, there is absolutely no soil,—only red gravel and stones derived from the conglomerate, with an occasional out-crop of the conglomerate itself.

The conglomerate slopes southward into the water of the bay all along the shore, but between the shore and the mine several trap and amygdaloid beds appear, having a bearing, or strike, apparently in the direction of the coast, the whole of them being near the mine. The location of the mine is from 250 to 300 feet above the lake, and about a mile north from the bay. The shafting is in the conglomerate rock lying between trap beds, and slopes towards the south with the dip of the formation.

There is some coarse sandstone, or grit, disseminated among the conglomerate, some beds being a foot in thickness, but fading out to the right and left.

The mine is not now worked (1879) and has not been for a couple of years. There is not a man, woman or child here, but there are many houses, stores, shops, and offices, including a Court House, this being the county seat of Isle Royale county. Everything is deserted. The machinery is mostly still here. The cars, shovel, and various accoutrements lie simply abandoned. The mills are perfect, the enginery for stamping and washing the ore being still on the ground and in good condition.

Toward the east from the dock of the Island Mine the coast is wholly occupied by the conglomerate, or by the overlying slate and sandrock, as far as Wright's Island, but the beach much of the way is formed of drift-brought stones.

562. Trap, somewhat decayed, from a niche in the coast line, south of the east end of Siskiwit lake. This is under the sandstone, but over the conglomerate. It rises from the water with a dip to the south. It has involved with it irregular beds of a porphyritic, harder rock, and patches of epidotic green rock.

563. The porphyry is finer than the porphyry of the pebbles of the conglomerate, but it seems possible that these porphyritic belts may come from a metamorphism of patches of that conglomerate holding such pebbles. The trap is confusedly bedded. The porphyry is also amygdaloidal, mottled with green and red-brown, with white calcite. At Chippewa harbor beds of sandstone and shale are between beds of trap, visible on both sides of the entrance dipping about 35 or 40 degrees to the south. On the east side but one bed of sedimentary rock is visible. It has a thickness of perhaps 75 feet. The overlying trap rises perpendicular perhaps 45 feet. A little further west a trap rises from below the sandrock and shale, and west of that another lower bed of fine shale appears in the coast line, the last being about 10 feet thick. On the west side, near the entrance, are visible two beds of shale and sandrock, alternating with trap. The trap contains fragments of shale and of angular quartzyte along a thickness of about a foot just over the shale-bed. The trap separating these beds of shale seems to be about 120 feet thick. That on the top of them, which also forms the coast line either side of Chippewa harbor, is also about 100 feet thick, and over that is much more sandstone, forming islands off the coast five or six miles west of the harbor. Chippewa Harbor enters nearly at right angles to the strike of the rock-beds, but after passing the narrows it turns more southerly and passes along the strike behind the bluffs formed by the foreging layers.

564. A white mineral from the trap at Chippewa Harbor, on the east side near the entrance, appears to be the same as the Wernerite from the trap at the Island Mine, but it has somewhat the appearance of pectolite. In this lot are also some green amygdules which are closely associated with the Wernerite in the rock.

565. Calcite, from a mass on the beach, containing a green radiated mineral like prochlorite, also Wernerite, and a little quartz.

566. From an amygdaloidal bed of trap that disintegrates, near the narrows of Chippewa Harbor. These green amygdules appear some like chlorastrolites, but they are probably some form of chlorite.

They have a radiating, fibrous interior, sometimes several centers in one mass.

The trap-rock of Chippewa Harbor, without exposed sandstone, continues to the little bay next south of Conglomerate bay, known as Lucky bay, where the rock is of the same kinds and probably of the same horizon as Nos. 562 and 563.

567. From Lucky bay, showing a passage from porphyritic trap to non-porphyritic. This porphyry is from the trap of the place, but it is in patches, or lenticular beds that are generally less than a foot thick, the mass of the rock being porphyritic; but sometimes having a few amygdules of green chlorite. The face of the rock shows a spotted surface when water-worn and partly decayed like much of the trap of the north shore.

568. Trap-rock, taken from the Saginaw Mine, near Conglomerate bay.

569. Epidotic rock, from the Saginaw Mine, the same being the ore of the vein mined for copper.

570. Amygdaloid containing calcite, chlorastrolite and chlorite, from the rock at the light house at the entrance to Rock Harbor.

570A. Chlorastrolites picked from the beach at Rock Harbor.

570B. Green "thomsonites," chlorastrolites, &c., from Rock Harbor.

Conglomerate bay has no conglomerate at the entrance, but toward the head of the bay it is found. The trap is crumpled and faulted between Lucky and Conglomerate bays, and dip generally E. S. E.

At the Siskiwit mine the work was on a vein of epidote and calcite. In the islands opposite is a bed of conglomerate, embraced between trap beds.

571. Samples of trap and gangue rock, from Siskiwit mine, Rock Harbor.

572. Trap rock from Scoville's Pt., Isle Royale.

573. Radiated, white, fibrous, zeolitic mineral from the trap at Scoville's Point, picked up on the beach.

574. Trap rock from the extremity of Black's Pt., east end of Isle Royale.

575. Thomsonites (?) and other zeolitic minerals, from the beach of the mainland, north shore of Isle Royale, about two miles S. W. from Lock's Point.

576. Prehnite and copper (some attached to the amygdaloid from which they come, from the little bay at the east extremity of Fish Island).

577. Black oxide of copper, from the Minong mine, Isle Royale, attached to a large piece of the rock.

578. "Stamp ore," showing the nature of the rock in which the copper occurs.

579. Shows an occasional form of the rock in nodules, also included in the "Stamp ore."

580. Coarse green amygdaloid, the cavities being filled with chlorite or with geodic quartz with interior rosettes of chlorite, coated with green—the amygdules making up more than half of the bulk of the whole. It also shows some calcite and some laumontite. This adjoins the copper-bearing rock.

581. Native copper, from the Minong mine, Isle Royale.

582. Native alloy, and intimate mixture of copper and silver, Minong mine, Isle Royale.

583. Native copper, with attached crystals of—?

584. Battered copper, found about the large masses worked by the ancients.

585. Stone hammers used by the ancient miners at the Minong mine, Isle Royale. These are generally rounded or oval pebbles of fine basalt, evidently transported from the north shore of the lake, where they got their form by the action of the waves on the beach. They are not withed*. They are found in the debris about the old pits

586. Wood, found in the ancient dumping heaps.

At Silver Islet the shaft in 1879 was 720 feet below the level of the lake. The vein runs about N. and S. in the slates and quartzyte of the region, and varies from almost nothing towards the north to ten or twelve feet in its greatest width, which is where it intersects diorite dykes running N. E. and S. W. (said to be E. and W.) The dyke is set off where the vein crosses it, the east side being further to the south than the west. The richest deposits are near the intersection of the vein and dyke, and are accompanied with plumbago which has seggregated from the organic matter contained in the slates. The gangue-rock is a breccia of slate, filled with calc-spar and quartz, though mainly calc-spar. The silver is native and is disseminated through saccharoidal calcite. It is also found in the galena, but in general the galena is discarded. There are also blende and pyrite. This silver has been lately found combined in new forms with arsenic, antimony, &c., &c., creating new mineral species—Huntilite and

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*See the *Popular Science Monthly* for September, 1881, for an account of these ancient miners, by the writer.

Animikite. The vein seems to have been enlarged in passing the dyke and charged with these minerals. The work is now being pushed north and south, in hope of striking other dykes. In the vein are large spar-lined cavities in which gas accumulates, (carburetted hydrogen) which has caused some trouble from its slightly explosive character. Water gathering in the mine is strongly charged with some gas, probably the same, but at the bottom of the mine in the "diorite" rock, no water accumulates, and it is necessary to carry down water to serve the drill which is driven by compressed air, the same operation ventilating the shaft. The great deposits of native silver have been in near connection with the dyke, and the large cavities with calcite and galenite are in the same way related to it. The plumbago is along the hanging wall, and is closely connected with the "diorite" of the dyke—indeed is permeated sometimes with igneous rock matter.

587. Calcite and galenite masses with crystalline points perfect. The galenite here is in octahedrons instead of cubes.

588. Mass of octahedra of galenite, Silver Islet.

589. Plumbago, Silver Islet.

590. "Diorite," from the bottom of the mine, Silver Islet, 720 feet below the level of Lake Superior.

591. Saccharoidal spar, which is the gangue-rock.

592. Cemented breccia, from the vein.

593. Igneous rock, from the vein.

594. Slate, that incloses the vein.

595. Cores of the diamond drill, Silver Islet,

596. Stamp ore, with saccharoidal, flesh-colored calcite. Silver Islet.

596 A. Huntilite, from the Silver Islet mine, an arsenate of silver, antimony, cobalt, &c. (Wurtz.)

The following general section was taken at Silver Islet Landing. Some of these beds are seen only at a mile or two north from the lake. It is given in descending order.

(1.)	Mottled, red-and-bluff, fissile shale, checked and crumbling into small angular pieces; below conglomeritic and lighter colored, siliceous limestone and chert predominating, ashy and loose........	40 ft.
(2.)	Light-red dolomitic sandrock, some parts being red sandrock, weathering generally of a light color	35 ft.
(3.)	Siliceous conglomerate, with rounded pebbles......	5 ft.

(4.) Greenish, weathering dark, fissile sandrock, appearing at a distance like thin-bedded slate—really fine-grained and aluminous, apparently the top of the slate and quartzyte in which the silver occurs. The transition is gradual from a hard quartzyte and slate, near the bottom, to an arenaceous slate, through a greenish color which is first brownish and then reddish, thus getting the color of the beds higher still. Seem.......................... 55 ft.

Seem total..............................135 ft.

There is, presumably, slate to the thickness of about 50 or 60 feet more, hid by tubes. The above are all conformable, so far as can be seen here, and are cut by "diorite" dykes running to the top.

597. Fissile, mottled red-and-buff shale, from No. 1 of the foregoing section.

597 A. Siliceous and cherty, with calcareous nodules, from the lower, and conglomeritic, portion of 597.

598. Light-red dolomitic, sandrock, compact, mixed with red sandrock, from No. 2 above.

599. Siliceous conglomerate, from No. 3 above.

599 A. Pebbles from 599, water-worn.!

600. Greenish fissile slate, from No. 4 above. Aluminous and fine-grained. The samples are rather too quartzose to fairly represent the bed. They are from the lower portion. The higher beds are softer.

601. Coarse porphyritic "dioryte," in a dyke running parallel with and contiguous to and passing into

602. A fine-grained dioryte, in the form of a dyke. The interval of transition is perhaps two feet wide and the crystals of feldspar are scatteringly disseminated through it on the south side, and wholly disappear on the north side. They run in the same direction as the dyke on Silver Islet. The whole is 45 feet wide, but is evenly divided between Nos. 601 and 602, from about a mile north of the "Landing" at Silver Islet.

Pigeon River Falls are formed by the range of hills of trap that set in near the head of Wauswaugoning Bay. The range is an immense dyke cutting the slate, and continues east so as to make the peninsula that separates the bay into North and South Arms, but undulates up and down. It is in one of the downward undulations that the falls occur. Probably more of these hills than has been supposed, are simply dykes piled up over the fissure when the rock was molten, sometimes flowing over. Hat Point and Mt. Josephine are thus dykes.

603. Porphyritic dioryte, such as cover the hills of quartzyte and slate at Pigeon Pt. From the extremity of Pigeon Pt. (V. No. 291.)

604. Black, fine-grained, hardened slate, from south of the dyke (No. 605) on the point next east of the little bay where the portage passes over Pigeon Pt., on the south shore of Pigeon Pt. The portage is 87 paces over, from the top of the beach on the south side to the same on the north side, and passes wholly over moss-covered, loosened fragments of rock.

605. Dyke-rock, cutting the slates and quartzyte, 35 feet wide, at the bay where the little portage crosses the point.

606. Rock of the surface next north of the dyke, in contact with it.

607. Modification of the quartzytes next north of the dyke, and under No. 606, fine-grained quartzose syenite, some of it not showing orthoclase.

608. Fine-grained, reddish quartzose syenite, a modification of the quartzytes, under No. 606.

609. Similar to the last, but further from the dyke No. 605.

610. Similar to the last, but more red, further from No. 605.

611. Red, fragile syenite, a further modification of the rock underlying the rock No. 606, and further within the bay.

612. A further modification of the same beds or underlying beds, from a few feet within the bay toward the portage trail, northwesterly from 604. This is evidently mingled with igneous matter, though having a slightly red color. There is a fine cross-jointage in 610 and 612 that resembles that of some igneous dykes, but this is not anywhere seen.

The relations of 607—612 to the dyke and to the quartzyte cannot be stated positively, for the whole situation is confused, yet the position of the beds from which they are derived is such that they would succeed each other in descending order. No. 604 seems to be the quartzyte hardened. It forms a surface sloping to the lake. It is cut by No. 605, but as 605 rises five or six feet above the lake it comes in contact on the north side with 606, which, while so situated as to be the apparent continuation of 604, has a very different lithology. It is much like the rock 603, at the extremity of the point; is coarser-grained than 604, but has free quartz and horn-blende. No. 606 overlies the numbers following to No. 612. These last cannot be said to come exactly in the order numbered, but probably do approximately. The layers are in strata and dip S. or S. E. weathering out thin-bedded.

The samples did not come from successive beds, but rather at increasing distances along the beach, somewhat descending in the strata. The fragile parts (Nos. 611 and 612) are at once followed by the pebbly beach where the portage trail passes over to the north side. These are piled in successive steps upon each other to the height of 15 feet, and continue across the bay. It was doubtless owing to the occurrence of these soft beds, which rot and chip up, under the water and ice of the lake, that the break-down in the peninsula exists here.

613. On the west side of this little bay the point consists of rock like some of the rock on the other point (607—612), but is hard and firm. It has a resemblance to the plumbaginous quartzyte (552), but with the naked eye no plumbago can be detected.

614. Near the point a dyke cuts this rock, blackening and hardening it. The dyke seems to dip N. E. so as to stand at right angles to the dip of the quartzyte, and the north wall is very distinct, the dyke having been torn away by the lake.

615. Rock of the above dyke.

This dyke, which is 12 feet wide, has not the direction of that on the other point, but [illegible]ns out into the lake S. E. while that on the other point seems to run into the bay, lying to the north of this. These dykes each point toward a hill of quartzyte near the coast a short distance west.

616. Further within the bay, on the west point, the rock bluff facing east is reddish and mottled, like much of that on the other point. Sometimes the prevailing color is red, and sometimes green, but the colors do not apparently change in any observable regularity, or in accordance with the strata. By far the greater portion on the west point is red, while on the east point a green color is more common; bands and veins of red run through the green, or *vice versa*.

The two dykes mentioned at Little Portage bay converge toward a hill near the south coast—indeed the rock forming the point (613) seems to rise and culminate in this hill, though the hill is at last sudden in ascent on nearly all sides. It is about one-half mile west of the portage.

617. From near the base of the hill mentioned, a reddish gray quartzyte.

618. Gray quartzyte, from the top of the same hill. This hill is with the exception of that back of Clark's Bay, the highest on the peninsula, and consists of metamorphosed, highly inclined, basaltified, gray quartzyte. The softer beds that allow of the narrows in the

peninsula form a belt of low land running north of this hill, and striking the north coast N. W. from the hill.

There are four principal elevations on the peninsula. 1st. East of the narrows, forming a basaltic bluff perpendicular from the water on the north side of the point. 2nd. The quartzyte hill near and west of the Little Portage bay. 3rd. Hill at the head of Clark's Bay, north of it. 4th. The hill range cut by the Parker vein. Of these the third is the highest, being about three hundred and fifty feet above the lake.

619. From the same hill as No. 618, on the south side where the structure is basaltic.

This quartzyte assumes forms, structures, colors and positions that give it a very great resemblance to igneous rock. It is often finely or coarsely basaltic (at least cut by numerous N. and S. parallel points), and sometimes rises suddenly to the height of over one hundred and fifty feet. It is dark gray, greenish, red, black. It is globuliferous, or at least disintegrates in a rough or cavernous manner somewhat like trap rock. It is porphyritic, with feldspar. These characters do not combine, but occur separately, and it can hence generally be identified.

620. Rock of the E. Palisades (V. No. 230). This rock is red on weathering under friction, but, being coarsely fissile, or shaly, cut by innumerable seams, it rarely fractures freshly but parts into small angular pieces by a blow from the hammer, showing only greenish coatings in the seams. Its true fracture is ragged. This rock has fine translucent grains of quartz resembling those of the Great Palisades and a general outward resemblance to the rock of the Great Palisades.

621. Thomsonites (?) &c., from a short beach at Lover's Bay. The trap that encloses this bay is dark, but slightly greenish, and amygdaloidal with Thomsonites and Wernerite. They are few and dull in color. They are generally of a pink color, or massive and white. (See after No. 192.)

622. Stilbite, thomsonite, calcite &c., mouth of False Poplar river.

623. Dark, greenish trap, forming the upper layer of the point that encloses Eclipse beach on the east. This is two and one-half feet thick, not amygdaloidal, but very chloritic from decay.

624. Laumontitic amygdaloid, lying below No. 623. This has some stilbite and some thomsonite. This bed by easy disintegration forms two small harbors, one protecting from the N. E. and one from the S. W. The beach of the west harbor is of gravel, and has many thomsonites, but the east harbor is entirely rock-bound. This bed is

about eight feet, but varies some, as the characters of No. 623 fluctuate up and down. The general color is a dull red.

625. Greenish trap, having much thomsonite, prochlorite and some stilbite. From this bed the thomsonites of Eclipse beach weather out. Some of the masses of thomsonites are three or four, or even ten inches across; but in the case of large masses the mineral lies rather in sheets, with radiating points on the upper and lower contact surfaces. Some large masses two inches across also have two or three points of radiation. When polished on the beach the pieces which result from the destruction of the large masses are prismatic, but there are also many round and oval which have not been broken on separation from the rock. These show the circular radiating results of different colors on the outer surfaces when polished on the beach. The colors are pink, red, white and green,—at least the same green mineral is found here, always smaller than the other thomsonites, as is found at Terrace Point. This green mineral often surrounds the pink and white radiating masses of thomsonite. It is itself not evidently radiated, and the radiations of the thomsonite penetrate it.

This rock is very nearly, if not exactly, on the same horizon as the trap at Terrace Point, judging from the run of the beds, as they extend along the coast from that place. The same horizon extends to Poplar river without much deviation. Some thomsonites are to be seen on the beach at Poplar river. The thickness of No. 625 cannot be made out, as it forms the coast-line eastward. (V. No. 187.)

625A. Thomsonites, picked from the rock at Eclipse Beach.

625B. Thomsonites, picked from the beach at Eclipse Beach.*

626. Red laumontitic amygdaloid, from about mid-way between Poplar and Temperance rivers (Nos. 177 and 178). This is in regular beds, of a few inches, or less than an inch, lying like a sedimentary rock. The general color is pinkish-red. These specimens may represent the red amygdaloid of several miles along here, even from Poplar river, though the sedimentation is not so plain in all cases. Over them here is a heavy bed of trap, massive or coarsely jointed. This trap bed forms arched purgatories, and tables extending over the lake, where it extends down to the water, the amygdaloid being eaten out by the lake. Occasional thomsonites occur here on the beach.

From two or three miles east of Temperance river to about half way to Poplar, is a very picturesque and interesting, but difficult coast.

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*This is called Eclipse Beach, because in 1878, in the latter part of July, our boat was driven in here by high wind, and during our enforced stay in the afternoon, the sun was eclipsed about half an hour. Being compelled to spend the night here, our camp was pitched on the bluff and between the two harbors.

The trap and amygdaloid form a thousand fantastic shapes, as the line of the lake level cuts across the undulations of their bedding and change of dip. Sometimes the bridge of trap rock, produced by the eating away of the soft underlying amygdaloid, runs intact down to the lake, forming deep reverberating purgatories in which by the confinement and compression of pockets and chambers of air, the waves that close up the entrance are thrust back quickly again. Sometimes the bridge breaks down, leaving islands of rock just off the line of coast. Sometimes bridge, islands and all are taken away, letting the lake break on the base of the high bluff rising often perpendicular from the water, or skirted by a narrow pebbly beach, a few rods inside the line where the islands had existed. The effect of wave-and-frost-action on a line of stratigraphy of alternating hardness could not be more perfectly illustrated.

627. Dark trap, forming an arched rock at the shore three-fourths of a mile west of Cross river. The eroded bed is one of two feet thickness of stilbite-thalite-laumontite amygdaloid, which lies on a firm bed of trap having thomsonite and stilbite with less thalite.

628. Basalt; mouth of the Manitou river. At this place about thirty feet of trap that shows red surfaces in falling to pieces, lies on an amygdaloid conglomerate, the two together forming precipitous bluffs on either side of the river, with lower stretches where the trap, which is basaltic or semi-basaltic, runs unbroken down to the water. This kind of coast runs east at least to the point west of Pork bay and west to Little Marais. (V. No. 160.)

629. Conglomerate, from the mouth of Manitou river. The conglomerate is crumbling, soft, red, amygdaloidal, the form and original structure of the pebbles being obscured or lost in the metamorphism.

Over this conglomerate at Manitou river the trap (628) is basaltic. Along the coast it greatly resembles the Grand Marais trap. The basalt is bedded, or at least jointed in the direction of the dip, so that the columns break off in pieces a few feet long, leaving a smooth surface below, but one on which the outlines of the tops of another tier of columns can be seen, and which is itself broken away at a lower level, so as to disclose another tier still lower. Thus in successive benches, or tiers of columns the bluffs ascend somewhat irregularly from twenty to eighty feet. Sometimes one of the lower tiers is not broken, but like a dome rises gradually from the water and runs under one of the upper tiers. This regularity is not the invariable form of the breaking away. Instead, a very rough surface, caused by the separate and individual fracture of the columns all over, sometimes runs down to the lake level. This is the case in approaching Little Marais from the east, where at the point the whole range of trap strikes southwardly into the lake and disappears under the water, forming a ragged, rocky point, and letting the coast line on to the conglomerate, which is but little seen, the only exposure being just at the point on the west of the strike of the trap.

630. Green, chloritic trap, from two miles west of Little Marais Point, forms perpendicular bluffs.

631. Green chloritic amygdaloid, from the same place.

631A. Red, compact, rock-like veins in 631. This red rock, which seems to be foreign to the rock 631 in which it appears, is found embraced in veins with stilbite and calcite.

West from Little Marais beach, the first little point is formed by a trap exposure which probably lies below the conglomerate. This continues west under a stony beach for a mile or so, when, with a high dip, it begins to show more and more, and finally to make a continuous bluff twenty to forty feet high. This trap (630) has a very different aspect from the Little Marais trap, being green instead of red, the amygdaloidal portions also being green. It contains stilbite, calcite, chlorite, (thalite) and some thomsonite. This trap and amygdaloid are bedded, but not basaltic. Running through it are seams, one and two inches wide, (631A.) which are made up of layers of stilbite and a red rocky substance that resembles the rock Nos. 7 and 42. On the beach are amygdules of quartz and thomsonite. This rock, taken all together, much resembles the rock at Eclipse Beach, and perhaps, if the horizons could be compared, it would prove to be synchronous in origin.

A little further west, as Nos. 630 and 631 rise above the beach, a reddish amygdaloid is brought into view, which on close examination proves to be a conglomerate. This rises, as the anticlinal bend of the trap passes inland so as to show about thirty-five feet with purgatories in a perpendicular bluff. Under it soon appears another trap which also rises in anticlinal, is broken away by the action of the lake, and discloses in an eastward facing bluff a lower conglomerate bed of unknown thickness. This anticlinal covers about a mile and a half. The beds return to the lake again at the headland about one-half mile still further west. This is on Secs. 29, 30 and 31, T. 57, R. 6, about three miles west of Little Marais.

632. Trap, from a point of rock on Sec. 29, T. 57, 6, separated from the green trap 630 by a conglomerate thirty-five feet thick. This is red in many spots, on account of the red partings along all the

joints, styled heulanditic by Norwood. It is crossed by red siliceous seams about one-half inch thick, and has large lumps of quartz and geodes. These red veins resemble the red vein material of 631A. but not so abundantly accompanied by stilbite. Thickness 12 feet.

632A. Siliceous, jaspery seams from trap No. 632, from a point about one-half mile west of where 630 appears.

632B. In the same beds of 632, or which at least contain 632A. are siliceous geodes, lined sometimes with amethyst, and a great many agates. These are in a bed but little above a conglomerate, and seem to have been derived from the fusion and dissemination of the material of the conglomerate, the same cause doubtless as filled the siliceous veins of 632A. In some geodes the central mass is laumontite.

633. Thin, irregular beds of trap, immediately under 632, containing red amygdules.

634. Nearly the same as 633, but underlies it; this seems to be a heulandite amygdaloid. It is near the top of the conglomerate. It also contains agate, stilbite, laumontite and chlorite. The red coatings and the heulanditic characters prevail along the red seams that cross and re-cross the rock. In some cases the red mineral penetrates the whole and is disseminated generally through the mass in the manner of amygdules.

634A. Amygdules of "heulandite," and of agate, stilbite and chlorite, picked from No. 634.

634B. Stilbite crystals from 634.

635. Greenish, rather soft, fine, sub-crystalline, compact crumbling rock, containing siliceous nodules. At first this polishes under the friction of the waves, but after long exposure it crumbles from the abundance of chlorite. It lies under No. 634 and also has heulandite in the upper portion. Nos. 633-35 have a thickness of only three or four feet, and are variously affected by proximity to the conglomerate.

635A. Stilbite amygdaloid, containing also agatized nodules, jasper, &c., lying below 634. The heulandite material coats the amygdules and all seams and joints; contains some chloritic amygdules.

Beginning with the Little Marais trap bed the succession downward appears as follows in going west along the coast:

1.	Little Marais trap, Nos. 160 and 628	30 ft.
2.	Amygdaloidal conglomerate (No. 629)	50 ft.
3.	Green trap, (two miles west of Little Marais, Nos. 630 and 636, ...	50 ft.
4.	Crumbling conglomerate, amygdaloidal, seen	35 ft.
5.	Trap, with heulandite (No. 632)	12 ft.

6. Trap, amygdaloidal with heulandite (?) (Nos. 633-4-5,.. 5 ft.

7. Amygdaloidal conglomerate. Thickness unknown.

636. Samples of red granite; resembles the red granite at the west point of Beaver Bay, but is coarser than that. At a distance this is apt to be mistaken for the Palisade rock. Sec. 1, T. 56, 7. This makes a high point, with a perpendicular face toward the S., but there is only a small area of it in the formation. (V. No. 157). This rock passes by slow changes into the Palisade rock. It appears at a number of other places along this part of the shore. (V. No. 643.)

637. Feldspar rock, Beaver Bay, at the west point of the bay, (V. No. 120).

637A. A light flesh-colored mineral, with a radiated structure, in scales filling seams in No. 637. The scales are generally about one-fourth inch thick, but are sometimes one-half inch.

638. Rock at the base of Encampment Island, from the north side of the island, (same as 106).

639. Green, heavy doleritic trap, coarse-grained, from the high bluff about a mile east of Silver Creek. (V. Nos. 105, 819.)

640. Two Harbor Rock, separated from No. 639 by a red amygdaloid, eighteen to twenty feet, as at Two Harbors; at the water level, under the hill formed by 639, about a mile E. of Silver Creek.

641. Trap amygdaloid, Knife river, grayish green, containing thalite and chlorite. (V. No. 91.)

From Grand Marais to Ogishkee Muncie Lake, and Mouth of Poplar River.

The hills that lie near the mouth of Silver creek, and that extend in a chain N. E. from here, are the first of that form and outward aspect similar to the Mt. Josephine class, that can be seen from the tug-boat in going down the shore from Duluth.

The range next east of Carlton's Peak has the same outward form but Carlton's Peak itself is different. Between Carlton's Peak and Poplar river are four prominent hills, rising about as high as Carlton's Peak. West of Carlton's Peak for a long distance, is an unbroken line of continuous high land, but further west still is a very ragged range of hills.

East from Poplar river are two gentle swells of high land at once; then the high land is more even-topped, gradually descending to the coast at Cascade river. The range appears double at Poplar river, a high hill farther inland overlapping the gap at both ends. The same is true at Cascade river.

In passing toward Grand Marais some of the hills, which do not from the S. W. show any semblance to the saw-teeth structure, change their profile, and fall into line as parts of the regular range. The range thus runs to Grand Marais, where it seems to fall away, or to recede from the coast.

The appearance of the hills suggests that the Silver creek range, already mentioned, having the outward appearance of those at Grand Portage, is of the same geological structure, and that the range east of Carlton's Peak, extending to Grand Marais, may be of another geological age or formation.

On the road from Grand Marais to Rove lake there is first a gradual ascent, with some flat spots, to "the summit," which is reached at about 1¾ miles from Grand Marais, where the aneroid shows 785 feet above Lake Superior. There is then an undulating ascent, or flat surface, to near the valley of the stream crossing Sec. 9, T. 61, R. 1 E. when there is a descent of about 40 feet over drift, to the creek, which is by aneroid 838 teet above Lake Superior. The valley here is broad and shallow, without any rock-cut. * The country thence is undulating, with good soil and sub-soil, and rather light timber, to the E. and W. town line, where there is a short swamp, but on the other side of the town line good farming land again returned. The whole distance from Grand Marais, along this road, is a tract generally tillable, even the hillside up which the track runs. The underlying rock, in the hill seems to be the Palisade rock, probably with igneous rocks in dykes, and overflow, but north of the hill the red rock returns again, as may be presumed from the occurrence of loose pieces of the red rock, and its shingle, occasionally on the trail. The rock in actual outcrop is not to be seen on the trail between Grand Marais and the E. and W. town line mentioned.

From the town line north to the Devil's Track river is about a mile. This stream is a little larger than the other, but has a similar valley. Their is no rock exposed at the crossing of Mayhew's road to Rove Lake. The valley is in the drift, but most of the stones are from the red formation—either real Palisade rock, or red granite like that seen east of Beaver Bay and at Beaver Bay. (V. No. 665)

Along the same road toward Rove Lake, north from the crossing of the Devil's Track river, the red rock continues to form the basis of the country, as shown by the fragments of such rock along the trail, and where trees have been thrown down by wind, to about 1½ miles north of the town line where a belt of coarse dark trap appears, extending

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*The surveyor's plats here erroneously extend the steep bluffs of rock along both sides of the river.

perhaps 20 rods, when the red returns for one-fourth mile. Then another belt of coarse trap-rock like that in the Grand Portage region follows for about 20 rods. The general surface is not rough, but undulating. It is covered loosely by a loam, or mold, which supports trees to a certain size. They are generally blown over and afterward consumed by fire which also burns up the soil. There is not much drift.

At the center of T. 62, 1 E. a little knoll of dry land occurs in the midst of a swamp. Here the rock is coarsely crystalline doleryte. At a short distance further an amygdaloid appears, and the "Two Harbor Rock," so-called in these descriptions. This last appears soon after passing a little creek; but the country is in general a swamp, with caribou trail in soft wet moss running among the spruces and tamaracks. The surface is closely underlaid by the rock *in situ* or by fragments which are lightly covered by the moss or by a vegetable mold. Among fragments of the "Two Harbor Rock" (and occasionally the rock in place) are to be seen also masses of igneous, coarse-grained rock like that overlying the Two Harbor rock.

642. From about one mile north of the center of T. 62 N. 1 E. on Mayhew's trail, this red rock here which appears as a fine red syenite forms an escarpment about 15 feet high, mostly hid by the trees and moss, facing N. N. E. This is not wholly red within, though it weathers red, but is a reddish-brown, and has red crystalline specks scattered through it. It is in heavy, hard layers, and does not shatter into angular small pieces like the red rock. It contains free quartz. Toward the south the land is higher than this bluff, but the bluff overlooks immediately a swamp, and a creek, toward the north. Toward the west this escarpment rises into a hill 75 or 80 feet high. At the foot of the bluff is the rare feature of a foreign syenite boulder.

643. In the northern tier of sections in T. 62 N. 1 E., where the trail crosses them, is a hill range 100 to 150 feet high, with white pine, birch and white cedar, of larger dimensions than in the lower land. This range is composed of a red rock very much like the last number, approaching the character of the red granite seen east of Beaver Bay (No. 636). Many boulders of such rock are in the road before reaching the hills, and more in ascending them. There are a few also of the gray slate and quartzyte, and some of the Grand Portage igneous rock; nine-tenths of them, however, are of this "red granite."

644. The top of this hill, however, consists of igneous rock. This is not certainly in overflow. It may be as a dyke protruding through

No. 643. East of the Mayhew trail, following the town line between towns 62 and 63, the land rises in a ridge perhaps 200 feet above the country further south. The ridge runs about E. and W. covered with heavy forest, and formed of "red granite." This sample contains quartz and orthoclase, and is not a true igneous rock.

This range of hills, composed of this red rock, appears like a range of upheaval, and finally the country becomes wholly hilly.

645. "Red granite," like 642, from this hill-range, S. W. ¼ Sec. 35, T. 63, 1 E. on a little creek. This rock seems to be the result of higher metamorphism of the coast-line red rock, or the Palisade rock. The change seems to have been gradual. While but little of this rock is encountered along the lake shore, it here constitutes the rock of the country, and rises into considerable hills. This difference of crystallization must be due to greater nearness to the seat of upheaval and heat, which would not be in consonance with the opinion expressed by Messrs. Bell and Logan, locating the belt of greatest disturbance in the bed of Lake Superior. It seems reather to be back in the vein of the lake-basin. Most of the rock is like this number, but there is also much like No. 644, in large masses that fall from the hills, and that lie on the tops of the hills. It is difficult to separate 644 from 645. It seems to be due to a mixed condition of matter from the sedimentary and from the igneous rocks, or perhaps to a complete fusion, and flowing in igneous form, of the same rock.

These hills are from 1,000 to 1,200 feet above Lake Superior, and from 100 to 150 feet above the surrounding country.

646. "Red granite," S. E cor. Y 63, 1 E.

647. Red rock, like 643 and 645, making hills in N. W. cor. T. 62, 2 E. and N. E. cor. T. 62, 1 E. Associated with this red rock in some way not ascertainable on account of the prevalance of surface mold and bushes, is found the next.

648. This is a darker rock, containing quartz, orthoclase, plagioclase, hornblende, magnetite, viridite, apatite having somewhat the aspect of the Grand Portage trap hills, but not its mineral composition. It may be only a local irregularity in the lithology, as suggested under No. 645, or due to a profound metamorphism of other sedimentary bids having a different composition originally. There is abundant opportunity for this latter hypothesis, because under the red-rock which is supposed to make by further crystallization the red granite, is an immense thickness of black slates and quartzytes, as seen in the peninsula of Pigeon Point, the strike of which must pass westwardly though the country north of Grand Marais. If the upheaval and metamor-

phism of the red rock, which took place after its deposition, also disturbed with the same long-continued effect the underlying quartzytes, they would be deeply metamorphosed also, and would produce a rock different from a truly igneous rock, and from the overlying red granite. This is also further probable from the observed conformity between the red rock, or red quartzytes at least of Pigeon Point, and the underlying black slates and quartzytes. But at present Nos. 644 and 648, and other rocks like them from the same region, may be conconsidered undetermined, though with a probability of an original sedimentary condition.

649. Sample of the rock seen in loose pieces along the trail going N. between Sec. 36, T. 63. 1 E. and Sec. 31, T. 63, 2 E. A high hill runs along the east of the trail, the trail being west of the town line. This is a red syenite, but with much magnitite and hornblende.

650. Another sample of dark dioritic rock. This is so abundant that it must be in place near, but cannot be seen.

651. Magnetited dioryte, from boulders, seen along the same trail, twenty to thirty rods north of the last. This same rock forms a hill along the right of the trail. This resembles the Herman iron ore (No. 514,) but it seems also associated with the dark rock No. 644 and 648, which is regarded as originally a sedimentary rock.

Across the creek which passes north near the town line where this iron occurs, is another hill made of the same rock showing a perpendicular wall facing E. rising about fifty feet, viz.:

652. Dark, heavy dioryte (?) with magnetite, from a point about one-fourth mile from the Brule river, and half a mile west of the town line.

653. Red rock, from the Brule, some west of the town line. This rock still prevails, thrown up by trees.

But immediately across the Brule, on the town line, between it and the head of Elephant lake, is a low range of trap hills, of the kind characteristic of the Grand Portage district. This rock here rises in domes, and the rock it lies on cannot be seen. Yet on the south side of the Brule it apparently lies on the red rock, rising in the hills and ranges higher than this. It is coarse, and not so much magnetited as the rock No. 652, south of the Brule.

North and west of the Burle, the country appears, viewed from a burnt knob of this trap, quite hilly, and apparently the beginning of the broken surface seen along the boundary.

Also west, in the next town, northwest from here, are seen some high hills.

About one-half mile north of he north side of Elephant lake on the town line, large pieces of the slate and quartzyte formation begin to appear, with boulders of the trap last mentioned. The country is more nearly level, but covered with tamarack or spruces in the swamps, and white pine, tamarack, white cedar, poplar, white birch, and mountain ash, on the ridges or higher flats.

A little further on, however, are many pieces of the red rock on the banks of a little creek running west, and as they probably would not have been transported north, but the quartzyte and slate may have been transported south, it is probable that the red rock really extends as far north as this place.

Secs. 18 and 19, T. 63, 2 E, the red rock comes in full force, forming a range of hills running E. and W. across the town line, without a capping of trap. This hill-range is covered with Pinus banksiana, and the ground is carpeted with moss, as in a tamarack swamp. Indeed this carpet of moss is general here. It seems to depend on the rains that are perhaps more frequent about the summits of the hills. The moist winds from the lake encounter the colder land winds coming more from the north, transient showers are the result.

654. This sample is from a ridge rising about one hundred and seventy-five feet, crossed by the section line running east, S. E ¼ Sec. 18, T. 63, 2 E. This is plainly an igneous rock of the usual kind seen on the shore of Superior. It is fine-grained and dark.

655. N. E. ¼ Sec. 20, 63, 2. A low ridge of coarse-grained vesicular reddish rock, containing free quartz, probably a condition of the "red rock."

656. At another point, a little further east, this reddish rock vesiccular, and more evidently a condition of metamorphism, not being wholly crystalline.

657. Sec. 16, T. 63, 2 E, (on the southern line, just after the crossing of a creek) is a fine-grained, brown rock, having feldspar crystals handsomely disseminated sparingly through it, and resembling the stellar porphyries, pebbles of which are seen occasionally on the lake shore. It is a dark, brownish rock, which weathers red, but is hard, fine and compact, and shatters under the hammer in numerous preexisting joints which are iron-shot, making sharply angular fragments. This contains fine grains of free quartz, as shown in thin section, and probably comes from the sedimentary beds, associated with the rocks 648, 651 and 652.

658. Further on this ridge takes on the characters of 655 and 656.

659. This rock appears to be in place, but can be seen only in the form

of numerous loose pieces. It has the appearence of constituting the top portion of the ridge (658.) It is dark, coarsely crystalline, and allied to the diorytes (Nos. 651 and 652.) This ridge runs E. and W. nearly on the north side of the trail, and rises about two hundred feet.

On the line between Secs. 15 and 22, in town 63, 2 E. the country rock is the "red granite," but there are occasional patches of igneous rock, and also some traces of drift, shown by pieces of the quartzyte and slate, and by occasional boulders of syenite. The surface is generally moss-covered and wet. At the crossing of the Greenwood river, the boulders are nearly all of the "red granite." Following the line further east, to the little lake on Sec. 13, at the crossing of the stream, the rock is of the dioritic kind, coarsely crystalline, but there are a good many boulders of "red granite" and of slate.

At the crossing of the town line, which is on high land, is considerable good pine, perhaps 200,000 per forty on either side of the trail. The rock underlying is—

660. A gray dioryte, porphyritic, belonging to the same class of rocks as 651 and 652. The "red rock" seems to have continued along the line of the trail, as far east as to one-half mile west of the town line. East of that the country seems to have been in the next underlying beds as far as to—

661. One mile east of the town line (S. E. cor. Sec. 18, T. 63, 3 E.) is a reddish crystalline rock in place, and this continues east two miles from the town line.

662. The country seems to have considerable drift, often of clay, and does not show the underlying rock. The surface is nearly flat. This fine-grained porphyry is allied to No. 657 and is from S. W. ¼ Sec. 14.

663. S. W. ¼ Sec 19, T. 63, 4 E, on McFarland's trail. Here is a short E. and W. ridge, rising about fifteen feet, in which the rock is the stellar porphyry seen in pebbles on the lake shore. It is fine-grained and brown, but is beautifully set with intersecting tabular crystals of flesh-colored feldspar. The mass of the rock is made up of minute tabular crystals of a feldspar and opacite, with a few grains of chlorite, and very rarely a minute grain of quartz.

In about N. E. ¼ Sec. 30, T. 63, 4 E. is another low ridge, but made of a different rock, being of a coarse porphyritic dioryte, like some already numbered.

The height of land back of Horseshoe bay, three and a half miles from Lake Superior is 960 feet above the lake

664. At a little more than two miles from Horseshoe bay, appears

a diorite rock, in a ridge, made up almost entirely of feldspar and hornblende. A beach line is distinctly marked back of Horseshoe bay fifty feet above Lake Superior.

Passing up the hill back of Grand Marais, on what is known as the "Iron Trail," the hill is found by aneroid to be 1,063 feet where the trail passes over it, or 278 feet higher than where the Rove lake trail passes the summit. This is about one and one-half miles from the lake shore. The surface descends eighty-seven feet in passing northward to the level of the water in the south branch of the Devil's Track river.

The rock is mostly hid on this hill by drift, some of it being clay on the top, but in the southward slope, where the face is most precipitious, the rock is exposed.

665. Rock from the Grand Marais hill, eight hundred feet above Lake Superior, having a face seventy-five feet high toward the south. Rather fine-grained trap, reddish brown, evidently an ingneous rock. The top of this hill seems to consist of this rock, but toward the base, on the south side, the red rock that forms the beach at Grand Marais is so abundant in old tree-roots, thrown up by the wind, that it is unquestionably in place there, though so covered by its own debris that it cannot be seen *in situ*.

The level of the general surface does not fall away again, after reaching the top of the hill, more than thirty or forty feet, when it becomes a swamp of spruce and tamarack, with the usual covering of coarse Caribou mosses. Passing over the swamp, (about three-fourths of a mile) a slight ascent begins, rising again to about the level of the first hill. After a short distance of dry land the surface descends rather abruptly to the south beach of the Devil's Track river, which is eighty-seven feet lower than the top of Mayhew's hill. No more rock is seen to this place, and here can be seen only boulders. The lake from which the south beach flows is thirty-nine feet higher than the river where the trail crosses it.

666. "Red rock," with small glassy crystals like quartz, from the N. E. side of the lake from which the south beach of the Devil's Track flows. Many loose pieces are seen, but none is to be seen in place, the country being drift-covered. Devil's Track lake is forty-nine feet above South Branch lake, or 1,064 feet above Lake Superior. No rock *in situ* appears between the perpendicular escarpment of the Grand Marais hill and Devil's Track lake, so far as can be seen along the "Iron Trail," which strikes the lake on the south shore one-fourth

mile east of the fourth meridian. The beach here shows no rock, *in situ*, but is composed entirely of small angular pieces of—

667, which is evidently the rock of the country, on account of its abundance, and the fresh angles of the outside. It is reddish-brown, compact, rather fine-grained, but porphyritic with flesh-red feldspar of the color of the moss. In the interior are seen, on fracture, green specks probably due to changed hornblende. On the surface these weather out, making a pitted exterior. It also contains free quartz, making it the equivalent of the red syenite associated with No. 1 at Duluth.

The divide N. of Devil's Track lake is 1167 feet above Lake Superior. The swamp, which is one and one-fourth miles on the portage from Devil's Track lake to Tamarack lake is 1152 feet above Lake Superior. About one-half mile N. of Devil's Track lake the trail crosses the fourth meridian, and continues in a general N. N. W. direction to Tamarack lake. The country about is not hilly, but rises perhaps thirty to fifty feet above these lakes. Tamarack lake is 1132 feet over Lake Superior. The Devil's Track river enters it from the N. E. and a short distance above the lake the country becomes a vast swamp of tamarack and spruce. In the swamp are occasional dry knolls of gravelly clay and waterworn drift, but in general throughout the swamp the surface is covered with a thick coating of different caribon mosses. The knolls sometimes spread out indefinitely, rising four or five feet above the swamp, making a small flat area of the same characters as the knolls. There is no rock in place. The country is covered with drift. These knolls are of drift.

The agricultural character and value of this swamp are likely to be mistaken. It seems that in all parts of this district, wherever the surface is nearly flat, and the nature of the underlying rock is not such as to allow easy and rapid escape of the surface waters, a swamp of tamarack and spruce (or perhaps in a stony area, of white cedar) inevitably supervenes; the easily drained hilly tracts, which perhaps are so stony and rocky as not to be arable, are *apparently* better for farming, and are now covered with fine timber. A settler would naturally select these uplands, whereas really the low lands are furnished with the better soil, and are freer from stones. This covering of the uplands with a more or less hardy and stunted evergreen forest, somewhat sparse, is characteristic of high northern latitudes, and here seems to be due to the severe, but moist climate which prevails.

Owl lake is about twelve feet higher than Devil's Track lake, or 1,148 above Lake Superior.

668. About one-third way across the portage from Owl lake to Little Pine lake, are low rocky mounds and ridges, twenty-five to sixty feet high, covered with pine. These ridges consist of this rock, a red syenite, with green specks and red feldspathic crystalline surfaces like several other samples obtained in this region.

The kind of country described north of Tamarack Lake, does not continue through to Little Pine Lake, but in a short distance lindens appears in the forest, then white pine, hazel, mountain ash, etc., while tamarack and spruce gradually disappear, the balance continuing to be interspersed even among the pines and in the uplands. Pretty soon the forest is nine-tenths white pine, the rest being composed of white Birch, Norway pine, Balsam, Mountain ash and Mountain maple, at the same time that the level of the country is elevated to 100 and 150 feet above the adjoining lakes, and is rolling and hilly, with frequent large boulders and occasional exposures of the underlying rock (668). The soil is coarse and stony, with boulders of light syenite and many of red syenite from the rock of the country. It is a rusty, loamy clay, that seems to be the direct result of the disintegration of the stones of the drift, changed by the action of vegetation.

669. Is from what appears to be a dyke, about half way between Owl Lake and Little Pine Lake, though the exposure is not sufficient to show whether a dyke or not. There is a perpendicular wall exposed running N. and S. near the trail, on the east side, extending about 25 feet and rising five feet, sinking down to the general level on either side, facing west. There is in it a jointage that weathers out in perpendicular bands or basaltic layers, that run E. and W. from one inch to three or four inches in thickness, very much like dykes seen on the shore of Lake Superior. There is also a blind ridge or elevation running east, through the woods, of about the same height, but showing no rock as far as traced. Toward the west, after a low gap of about 40 feet, the surface rises gradually to about eight feet, and in the top is the same rock; but it abruptly sinks away into a valley, while toward the N. W. is a considerable elevation or ridge covered with pine and containing the red granite No. 668. No. 669 seems to be a dyke cutting the red rock, and perhaps breaking through it in a number of other places. It is, indeed, one of the causes of the "red granite" which all of the time is supposed to be due to complete fusion and change of the "Palisade rock," and that to a feebler application of the same force to the red shales and sands of the Potsdam seen in the St. Louis river at Fond du Lac. No. 669 is apparently what Prof. Pumpelly has described as a *melaphyr* — a dark homogeneous trap,

globuliferous-weathering, and sometimes showing in the sunlight large reflecting crystalline surfaces in the mass of the rock, due to crystals of pyroxene that embrace all the other minerals.

A short distance north of the divide between Owl and Little Pine Lakes, on the north slope, the red rock, which is laid bare by the overthrow of a large pine by a late cylone, shows a smooth glaciation, but no prevailing direction can be distinguished.

Little Pine Lake, which is 1,154 feet above Lake Superior by rough aneroid observations, has no rock visible about its shores, but under the water near the shore can be seen everywhere sub-angular pieces of the red syenite like No. 668. In making the portage from Little Pine Lake to Clubfoot Lake, which is 1,173 feet above Lake Superior, there is a small exposure of the red granite seen on the trail, but elsewhere the rock is either hid, or is of boulders. About the S. and W. end of Little Pine Lake are numerous foreign boulders. The same is true of the S. and E. shores of Clubfoot Lake.

Round Lake is 1,208 feet above Lake Superior, and Abita Lake is 1,349 feet.

670. From one-fourth mile S. of Lake Abita, in the large hill over which the trail passes, apparently a dioryte, consisting largely of hornblende.

671. "Red granite," from the hill near the south shore of Lake Abita, but not certainly in place. The hill rises about 225 feet above Lake Abita and 1,574 feet above Lake Superior, and is separated from the hill from which No. 670 comes by a dry valley, but which has a creek in wet seasons.

672. The same hill which furnishes No. 671 near the lake is made up of this rock toward the top, being a coarse dioryte. In what manner this is related to No. 671 does not readily appear. There can be seen large blocks of this, and some small mural faces, along the north side of the hill, but in general everything is hid by turf, forest and mosses. There is but little doubt, however, but these blocks are not far removed from their natural places.

The lakes of Brule river, north from Brule Mt., are 955 feet above Lake Superior, by aneroid, and Brule Mt. in its highest part is 1,461 feet above Lake Superior. Brule Mt. does not appear like a mountain from the south, rising but 30 feet above Lake Abita, but from the north it is very prominent as an isolated hill that rises 506 feet above the river flowing along its northern base.

673. "Red granite," top of Brule Mt. and the rock is not well seen

in situ. Almost no rock but the red granite is seen along the trail from Lake Abita to —

674, a rather fine-grained deposit, with quartz, which occurs on the north face of Brule Mt., forming a perpendicular wall about 20 feet high, but is only seen (so far as examined) a little east of but near the trail. It is 240 feet below the top of the mountain, and makes a more or less continuous jog or shoulder. Very few red pieces are to be seen north of this shoulder, but south of it they make nine-tenths of all the stones. Occasionally light-colored gneiss and granite are seen, and rarely a piece of siliceous slate, so that it seems as if here were the northern boundary of the red granite (V. No. 685).

675. In the northern face of Brule Mt., 300 feet below the top about south from the east end of the westerly lake in Brule river. This reddish granitoid rock forms a perpendicular wall of 60 feet in height. This contains much hornblende, thus causing it to approach the mineral characters of the dioryte No. 674.

676. At a lower level another perpendicular wall of rock is found on the north side, a little to the west of the section line between sections 16 and 17, rising about 78 feet. This rock resembles the rock No. 674, but the bluff cannot be said to consist entirely of this. Another exposure of rock like No. 676 is at the water level on the north side of the lake mentioned. It runs under the lake, sloping south, and is like No. 676 deeply disintegrated.

The top of Brule Mt. is rounded and forest-covered, the ascent in all directions being very gradual, but most abrupt from the north. The only rock seen is boulders, generally of dioryte. The highest point is about one-eight mile east of the section corner (17, 16, 20, 21, in T. 63 N. R. 1 W.) and one-sixteenth of a mile south. From this place no higher land can be seen toward the east, but there is a high peak toward the S. W. six or eight miles, supposed to be Eagle Mt., a very high range visible a few miles north, afterward learned to be the *Misquah Hills*, and other hills to the west. About north of the peak thought to be Eagle Mt , is a high square-cut hill, like one of the Saw-teeth hills; but toward the S E. is low, flat ground, probably the course of the Brule valley.*

On the next portage northward from Brule river the country is a swamp, with occasinal low knolls, or short ridges, the whole covered with tamarack and spruce, and the lower parts being very stony, similar to the St. Louis valley from N. Pacific Junction northward to

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*Some of these particulars were obtained of my man Mallmann who climbed a "Jack pine" eighty feet kigh, growing on the top of the mountain, and from it described the surrounding country.

Knife Falls and similar to many swamps in the northern part of the State, the most of the stones here being of the rock No. 676, but with a sprinkling of red granite, as if there were still rock of that kind in place further north. Some of the boulders are banded with magnetite. At about half way to Little Trout Lake the boulders of red granite constitute about half of all.

677. A short distance further north a hill rises on the east of the trail, but near it, (about 100 feet), consisting of the rock of this number—a very fine-grained basalt, nearly black, compact. In thin section this shows a multitude of similar polarizing, rounded small crystalline grains dispersed through a ground-mass of uniform character that is apparently semi-crystalline with scattered cubes of magnetite. This would seem to make it a crysolite basalt.

But in following the trail it passes over this hill-range, which is only part of a generally hilly tract surrounding the Little lake, next on the trail, the lake itself being 244 feet above the Brule river. These hills are not large, rising about 200 feet, but the country is what may be styled hilly. The rock constituting them is of the same kind as No. 676, and of the "red granite;" large masses of the former, and many small pieces of the latter, being strewn about.

This hill extends to the Little lake, and along the S. E. side, where the superposition of the strata can be made out in descending order, the highest stratum being of the "red granite." Thus: (with a dip 10 deg. S W.)

Red granite (not actually seen in place.)	
No. 678, in a regular bed of the thickness of........	15 ft.
No. 676, porphyry with red feldspar	4 ft.
No. 679A. porphyry with gray feldspar..........	8 ft.
No. 680. Fine bedded, crumbling, seen.............	18 ft.

The foregoing does not include all the strata, some being invisible both at the top and at the bottom. These strata seem to belong to the formation of the great slate and quartzyte range, underlying the cupiferous, as developed at Grand Portage and along the boundary line, but here more meamorphosed.

678, is a dark (pyroxenic ?) rock with no apparent feldspar. Fragments of rock like this were seen on the top of Brule Mt., evidently carried there by the drift movements, and could not be referred to their stratigraphic position. (V. 684).

679. Finely porphyritic with red feldspar, the ground mass being like the rock No. 678.

679A. The same as the last, with gray feldspar crystals.

680. A fine-grained, dark rock porphyroidally sprinked with feldspar of a flesh-red color. While this is in heavy beds in the stratification, it has a fine, rudely basaltic, disintegration, due to a structure of short joints and cross-planes. mainly perpendicular to the dip, by which it crumbles out so rapidly that it is not easy to get a fresh fracture. It is one of the shaly sedimentary parts of the so-called Animikie Group.

Little lake is 1,199 feet above Lake Superior, and about 200 feet below the surrounding hills. Little Trout lake is 1,272 feet above Lake Superior, being the highest on the Iron Trail in the traverse from Lake Superior to the boundary line.

The hill at the right of the portage from Little lake to Little Trout lake is made up of the numbers 681, 682 and 683 is downward order, with the thickness stated below: dip 20° S. E.

681, (seen twenty feet, may have more above.) A very fine, black rock, approaching aphanitic slate.

682, (35 feet.) Prophyry, both with red and with gray feldspar crystals. This is a part of the great formation lying below the cupriferous, already mentioned, and is in beds of an inch, where weathered, or in heavy layers of five or six feet. The ground mas seems to be the rock No. 678. The red color seems to come from weathering, the original color being gray. This is shown in one of the small samples. It has free quartz.

683. (20 feet; there is a talus below of fifty feet in which the rock is unknown.) A fine-grained heavy dark rock, apparently consisting of triclinic feldspar and diallage with a little uralite and magnetite.

684. Further north is a layer of four feet of a fine black rock, evidently crystalline, somewhat like No. 678 or 683, included between some of the beds of the foregoing prophyry, near the bottom of the same.

From Little Trout lake to Misquah lake is a descent of fifteen feet.

685. Reddish-brown rock weathering red, with red feldspar crystals. This rock makes the Misquah Hills in the S. W. part of T. 64, 1 W. It is rudely and coarsely basaltic, the columns being perpendicular to a S. or S. E. dip. This number is from near the trail about a mile south of Misquah lake, near the town line between 63 and 64, on Sec. 32, where a thickness of fifty feet can be seen. It is bedded as well as basaltic, and in weathering sometimes shows laminæ of one-fourth and one-half inch. It is undistinguishable from the rock frequently called red granite in these descriptions, but its geographical position seems to place it in a lower horizon. There may, however,

be several faulted upheavals of the same horizon, so that in going north one does not invariably pass on to lower beds, but sometimes from lower to higher.

Misquah lake* is flanked on the N. E. and E. by high brick-red hills. Some of them being 500 or 600 feet high. The trees, being nearly all fire-killed, and even consumed, allow a perfect view of the rock. It is the same as 685.

686. "Red granite" from the east of Misquah lake, Sec. 32, T. 64, 1 W. This rock is basaltified and massive, rising in mountain-like masses. It dips at a high angle toward the east.

687. The same rock as the last, breciated or scorified, though still weathering brick-red.

These mountains are mainly to the east of the trail and so far as can be seen they are formed wholly of this red rock.

There is much drift in the form of large boulders along the lakeward side of these red hills, particularly near the lake where the trail goes. These large pieces are of dioryte, often magnetited, and porphyry like No. 682 or dark rock like 681, with many pieces of siliceous slate and gray quartzyte.

688. The character of the rock, and the country, changes at once on entering Cross lake, which is thirty feet below Misquah lake. The rock when first seen is at the right of the entrance, and is mixed and irregular in structurre, as if it had been a conglomerate originally. In general it is porphyritic with gray feldspar and has a little quartz, but the ground-mass, which seems to be the rock No. 678, varies greatly in its prevalence over the feldspar — also the size of the feldspar crystals varies. Hence the outward aspect of the weathered surface is spotted with dark and light colors, the feldspathic parts (and particularly the coarser-grained) becoming white, or nearly so, the rest being darker, or with fine mixture of dark and light. The rock has a basaltic structure, and a very heavy bedding, the latter dipping south, and the basaltic structure being perpendicular to the dip (V. 701 and 702.)

Cross lake is a large lake, expanding in finger-shaped elongations east, west and southwest, and having several rock islands, as well as north and south. This lake and Misquah lake are tributary to the North Brule river. The shores and the islands of Cross lake are low, made of the next numbered rock.

689. Smilar to No. 688, but more uniform in structure Evidently a gray dioryte, from the same formation as that, and much like the rock 682.

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*So called from the Chippewa word meaning *red*, in allusion to the red walls by which it is enclosed along its east shores.

The lake through which the North Brule flows, next north of Cross lake, is surrounded by a similar low country, and has the same rock as No. 689. This also has many arms and bays running west, and from one of them is a canoe trail and portage to "Brule river lake," which gives source to the South Brule and to Temperance rivers.

Cariboo lake is 1,238 feet above Lake Superior, and twenty-two feet higher than North Brule lake. Its shores are low, mainly of bare rock like 689, which however, rises in some places from ten to fifteen feet. The timber is fire-killed, or consists of a second growth of small trees ten to twenty feet high. Between this and Popular lake is Little lake, three feet higher than Cariboo lake.

690. Near Little lake, at the north end of the portage, is a bare dome of rock, rising in the swamp about twenty feet, represented by this number. It is dark-colored, hard and fine-grained. It is not bedded, nor visibly basaltic, but all over the rounded exterior are polygonal spaces, marked out and included by bands of harder rock that rise as low ridges above the surface, fitting exactly to each other. This rock under the microscope shows its igneous origin by its composition which is plagioclase, augite and magnetite. It also seems to hold an occasional grain of quartz.

691. Gabbro, consisting of plagioclase (assumed to be labradorite), diallage and magnetite; related to the last. This is a sample of the usual "trap" of the country. It weathers light, and is in that way in marked contrast with the last, though that difference seems to be due soley to the greater proportionate amount of feldspar in this, and of augite in that. This occurs in patches on and in the last, and especially on the north side. It also seems to cross and cut it in vanishing veins.

692. Gabbro, like the last; this forms a series of bluffs along the south shore of Little lake, of about the same hight and form as the last described, but the rock is rather finer-graided than much of the trap of the country. This makes a low hill-range along the south side of the lake.

Poplar lake is 1,221 feet above Lake Superior. The rock the whole length of Poplar lake is the same as 692.

693. Gabbro; from the west end of Poplar lake, where the portage trail leaves it going to Duck lake. It rises about twenty feet above the water all about, in undulating domes, rounded as by glaciation, though no glacial marks can be seen. The country is burnt; a few foreign boulders are strewn over the bare rock surfaces.

Duck lake, by aneroid, is found to be 1,244 feet above Lake Superior, and Portage lake 1,234 feet. Where the trail reaches Portage lake is a low upheaval of rock like No. 693. The country generally is made of this rock, nearly bare. It contains in some places considerable magnetite. Mayhew lake is 1,213 feet above Lake Superior.

The same rock as 693, or some slight variation from it, continues to the entrance on Mayhew lake (or Iron lake), with increasing frequency of drift pieces of flinty quartzyte and slaty quartzyte. The trap is more magnetited in places, but, except in that particular no change can be seen.

694. Gabbro, with much magnetite; a little east of the section line between sections 32 and 33, on the south shore of Mayhew lake (or Iron lake.) The rock here is in even and continuous beds, that dip regularly to the south, like the quartzyte and trap of the country, undulating a little up and down. This is seen in many places. It occurs also on the south shore of Portage lake. The beds vary from four inches to twelve inches in thickness, and show weather-stripes on the exterior, due to varying composition, something like a sedimentary rock. (V. No. 814.) They suggest the query whether this trap may not be due to a change, *in loco*, of the early sedimentary rocks. The great extent, the constant dip, and this regularity of bedding, and its thinness, all coincide to point to that as its origin, rather than to the overflow of molten matter over so extensive a region. The mineral composition, however, is constant, and allies it to the igneous rocks of the "gabbro range" which graduate into the trap rocks of the Cupriferous. It seems, however, that there was a vast outflow of igneous rock in the midst of the era of the quartzyte and slate group, producing this area of the "gabbro range," and separating the lower portion from the eras of the porphyries, and the red shale and red sandstone which are characteristic of the cupriferous formation proper. There are some reasons for believing that this great igneous outflow entered the sedimentaries as "laccolites" in many places, and thus tilted and modified the overlying beds, instead of being produced prior to their deposition.

695. Magnetic ore, S. E. ¼ Sec. 36, T. 65, R. 3 W. on the north shore of Mayhew lake (also known as Iron lake.) This rock is a condition of the trap of the country, and is almost entirely made up of magnetite. A careful study of this location warrants the following generalized statements:

(1st.) The ore is in the igneous rock.

(2nd.) It varies in quality very much, even passing into rock that cannot be styled iron ore.

(3rd.) It involves with itself nodules of coarse gabbro containing considerable magnetite.

696. Sample of this nodular or concretionary rock embraced in the iron ore.

(4th.) It also embraces isolated pieces of gray quartzyte (apparently), but which in thin section are seen to consist of plagioclase, magnetite and augite; and some dark, crystalline, micaceous nodules.

697. Samples of the dark and micaceous nodules. These dark masses embrace dark labradorite (?) biotite, hæmatite, with viridite.

698. Samples of what appears like a granular, gray quartzyte, but which really consists of the minerals that go to make gabbro. This is distributed through 695 in rounded lumps like some masses of No. 696. Some masses of No. 698 are very large, where they occur on the north side of the swamp.

(5th.) It dips toward the south in beds whose aggregate thickness is at least fifty feet, but may be seventy-five feet, the actual amount being hid by a swamp.

(6th.) It involves also detached masses of coarsely crystalline gabbro nearly free from magnetite, but containing biotite.

(7th.) It sometimes gives place to a coarse trap of the same kind which is so large in amount as to constitute the rock of the place, and its connection with the ore cannot be seen.

699. Samples of this coarse, micaceous trap.

(8th.) It lies on a fine-grained rock like No. 698, which is a fine gabbro with chrysolite, resembling a fine, granular, gray quartzyte. This rock dips, so far as any dip is discoverable toward the north, and it seems to have furnished the rounded masses of No. 698 embraced in the iron ore. The northward dip is due to a deceptive appearance of columns of basalt.

700. Samples of this fine chrysolitic gabbro. This rock much resembles the chryrolite basalt No. 677.

(9th.) In seams and gashes in No. 698, the rock No. 699 is also found.

(10th.) The iron in considerable, but unknown quantity, is of fine quality, being seen in other places besides this described.*

West from this iron location, after passing the little bay running E. N. E. the north shore of the lake is made up of No. 699, which appears massive, weathers lighter than the trap usual in the country, and appears like the "Rice Point Granite." It is hard and firm, and rises in domes which rarely show any dip. At one-fourth mile west of the little bay it is broken by the lake and ice in winter and over a small area shows both a horizontal jointage, and one which has more the characters of dip to the N. 45 degrees—the latter having the planes of separation at varying intervals of six to eighteen inches, and marked also by a lighter weathering, or by a pinkish stain in the feldspar. This, however, may be the remains of a former basaltic structure.

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*This iron ore constitutes what is locally known as the "Mayhew Iron Range," and is found in a belt about a mile wide on both sides of Iron lake, and on the south side of Portage lake, and between Portage and Poplar lakes. An analysis reported by Mr. Hause, performed by R. S. Robertson of Pittsburg, Pa., gave the following result: Silica, 2.02; Alumina, 2.68; Titanium, 12.09; Sesqui Chromium, 2.40; Mag. ox. Iron, 80.78; Lime, trace, phos. acid, 0.03.

701. The rock last mentioned, resembling the "Rice Point Granite." It consists largely of a gray feldspar, is firm and massive and rounded. It also has diallage and magnetite, with occasional scales of biotite.

702 is embraced in pockets and lumps in No. 701. It is the same rock, but with much coarser crystals, and a larger per cent. of diallage (V. No. 688 and No. 1 D.).

703. Sample of iron ore at the east end of Pewabic Island containing all the ingredients of the rock, even mica. There are three or four other islands in the west end of Iron Lake. The iron here is plainly embraced in the rock 701, which is also the same as No. 696; which is the same as the rock styled trap or gabbro all the way from the south side of Little Lake. This rock of course has variations which account for its different aspects, but in all these it does not depart from the accepted characteristics of an igneous rock. Its variations are included within the range of mineral associations possible, by relative changes, in plagioclase (probably labradorite), chrysolite, augite, magnetite and it has as accessories biotite, hæmatite and a green mineral that may be derived from a decomposition of the augite, which is also frequently in the condition of diallage.

About a mile west of the end of Mayhew Lake, on the town line, is an isolated knob of the same kind of iron ore, in low ground, "30 links wide, all solid iron," so reported by Paul Morrison.

704. South of the little island crossed by the E. and W. town line, in Mayhew Lake, the rock is highly magnetited. It is also micaceous. It has plainly a dip to the south of about 25°. The jointage here is also somewhat like the apparent dip seen on the north shore four miles west of the little bay. A similar deceptive jointage resembling a N. dip is to be seen at the portage to Loon Lake, the general dip being to the south.

705. Appears like a metamorphic rock, bedded and dipping north about 45° at a point a little back (N.) from the shore, a short distance west of Mayhew's location, which underlies the iron-bearing rock, and the iron ore, and has been styled changed quartzyte. It really is a

crystalline, fine-grained rock which has hornblende changed to viridite, feldspar and magnetite, and its apparent northward dip is due to a fine basaltic jointage perpendicular to the true dip, which is about the same in degree toward the south (V. No. 700). No. 705 has a visible thickness of 10 feet, and the overlying iron rock has a thickness of about 20 feet.

706. Through the iron-rock at the location 705 run seams, three to six inches in thickness, of pinkish rock consisting of quartz, orthoclase and hornblende, in rather fine grains. These seams and veins are parallel with the basaltic jointage of the rock No. 705. Sometimes a pinkish shade of color runs into the trap, accompanied by quartz. These pinkish beds and seams, which simulate planes of bedding are probably due to contact with the underlying formation and infusion from it.

707. In some places in the trap, where one of these red seams passes through it, the hornblende which accompanies the red rock, greatly predominates, or is very coarse, and sometimes is fibrous and radiating, coating the walls of the seam. In such places mica also can be seen, and also, mixed with the fibrous hornblende, occasionally a crystal of quartz.

Nearly everywhere about the shores of Mayhew Lake the rock is trap, or gabbro, but generally with more magetite than usual.

708. On the portage north from Mayhew Lake to Loon Lake, the rock No. 705 first appears, with a southerly dip. Then, after a low space another ridge succeeds, showing the rock No.708, similar, if not identical with No. 705. This belongs to the great quartzyte and slate formation, or the "Animiki group." From the top of this ridge the descent to Loon Lake is sudden, and amounts to 150 or 175 feet

709. This is a range of high hills along the south side of Loon Lake, and between the bay and the lake, the top of which are made up of rock of this sample, which is like No. 708, having a thickness of 80 to 90 feet. This has the outward aspect of trap and perhaps has been designated trap in former instances, but it is to be distinguished from the igneous rock that has been described. Under the microscope in thin-section it consists of a triclinic feldspar, and some orthoclase, changed (or viriditic) hornblende, magnetite, and a small amount of quartz—a kind of dioryte. Its affinities with the great quartzyte and slate formation are evident, and it seems to have resulted from a metamorphism of the upper part of that formation. It is that which underlies the iron-bearing trap of Mayhew Lake. It is in heavy layers 4 to 10 feet thick, and has a coarse, perpendicular jointage that makes it

appear basaltic. It stands in perpendicular escarpment facing north and west, making the tops of the highest hills. It probably has not everywhere been kept distinct from the true igneous rock or gabbro which constitutes a heavy stratum lying over it. (V. under No. 300.) This is taken from the hill near the base of the point separating the bay from Loon Lake.

710. Dark, homogeneous, finely crystalline, heavy rock like No. 684, underlying No. 709 in the same bluff, 5 to 10 feet in thickness. This is in beds 6 to 10 inches thick.

711 and 712. The rest of this hill is made up of alternations of these rocks, altogether making a thickness of 100 to 125 feet, down to the level of Loon Lake. The former constitutes about nine-tenths of the whole. It is black, and grayish-black, in beds from 4 to 40 inches, very fine-grained, sub-crystalline, with a felted polarization, having a conchoidal structure. The latter is of the same color but more coarsely granular, is in beds of 1 to 3 inches, and is slaty in the direction of the dip, which is S. and 10° to 15° in amount, but in other places the dip amounts to 20 degrees. This hill is only one of a series of northward-facing bluffs which extend from some point in Canada as far west at least as the west end of Gunflint Lake, and produce a sudden shoulder in the surface contour. The actual highest divide, or *Mesabi* is usually a few miles further south, and is apt to consist of the gabbro rock. While there is a sudden descent northward from the face of these bluffs, amounting to 300 or 500 feet, the general level toward the south ascends to the top of the Mesabi, though sometimes there are two or three interrupted lines of similar northward-facing hills before the Mesabi is reached.

The country along the north of Tucker Lake is low, and occupied with magnetited trap, and this character continues southwestwardly some five or six miles further.

713. From the north shore of Tucker Lake, a magnetited gabbro, embracing also masses of rock like No. 702.

On the south side of Tucker Lake is a long range of hills rising about 100 feet, constituting the red Mesabi, though the whole tract between Tucker and Loon Lakes is also on the height of land for this region.

714. Gabbro from the hill range south of Tucker Lake, in the N. part of Sec. 10, T. 64, 3 W.; being the Mesabi in this part of the State. This is the same rock already described as constituting the low shores of Poplar and Iron Lakes (Nos. 693, 694 and 701). Between this hill range and Tucker Lake are several lower ridges of trap

rock. South from Iron Lake the "red rock" begins again in about six miles, according to Paul Morrison.

Duck Lake is 1,244 feet above Lake Superior. Poplar Lake, which is large and long E. and W., has numerous islands, resembling Saganaga, except that here they are of diroyte and gabbro instead of granite

715. From an island in Poplar Lake, near the portage coming from Little Lake. The usual rock about Poplar Lake.

Hungry Jack Lake is 1,069 feet above Lake Superior by this series of aneroid connections. Last year this lake was ascertained to be 1,200 feet above Lake Superior by series of observations from Grand Portage, making a disagreement of 131 feet (see the ninth annual report, p. 78, where this lake is distinguished as a "lake south of Birch Lake"). If this is all due to erroneous observations of the Iron trail south from Grand Marais, the elevations given along that route should be increased somewhat. The error is more likely to be in that route than in the boundary line route.[*]

716. Trap-rock, from the top of the "stair portage" which connects Duncan's Lake with Mud Lake. This forms a high basaltic bluff facing north, a little west of the portage.

717. Trap-rock from the north side of South Lake, opposite the town line between ranges 1 and 2 west. The north shore of this lake is low, and glaciated S. W. and N. E., and the south shore rises into high hills containing, presumably, the rock No. 716, at the top.

718. Fine trap-rock, south side of Gunflint river, a little east of the location of No. 305 last year. This runs obliquely down to the river, and under the water, in angular basaltic blocks like trap, presenting a face (back in the woods) toward the north much the same as the highest bluffs of the country.

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[*] Mr. E. Le M. Hoare carried a series of aneroid elevations from Grand Marais to Iron Lake for railroad purposes, and found the highest point on the line to be 1.180 feet. His route is shown on Plate II. This height was reached in S. W. ¼ Sec. 25. T. 63, north of the Twin Lakes From that point there is a very gentle, undulating descent to Iron Lake, along his route, which was found to be about 1,175 feet above Lake Superior, or 38 feet lower than by the observations of the geological survey. His profile shows a nearly level grade from the highest point southward to a point about a mile and a half north of the Devil's Track river, where a descent begins. The crossing of the Devil's Track river is 1,015 feet above Lake Superior. For the next two miles and a half the descent is 150 feet per mile. Between two and a half and four and a quarter miles from Lake Superior the grade is 165 feet per mile. and below that it is 147 feet per mile The crossing of the South branch of the Devil's Track river is 655 feet above Lake Superior By spirit-level and rod a point was fixed on the S. E. ¼ Sec. 13, T. 61 N., at the crossing of the creek, which had an elevation of 1,080 feet, and by the same means Devil's Track Lake was found to be 1,025 feet, or 39 feet lower than by the observations of the geological survey. Mr. Hoare states that numerous magnetite boulders are scattered over the country between Grand Marais and Iron Lake which produce marked local disturbances of the needle, and that there is evidently a deposit of iron ore at some point between Sec 5, 61, 1 E., and Devil's Track Lake. From several assays Mr. Hoare states that he ascertained the iron and titanium together in the ore from Iron Lake to be pretty nearly uniform throughout. but that the titanium varied from 6 to 13 per cent., displacing about the same percentage of iron. The ore is in enormous quantities, in one place laid bare so that he crossed over it 30 paces. Another deposit of magnetic iron was assayed by him, located "close to Poplar river and near Lake Superior," which produced 38 p. c iron, 1.53 p. c. manganese, and .05 of phosphorus

719. Trap-rock, having a jointed, or basaltic structure, from the easterly of the two points that enclose the little bay on the south side of Gunflint Lake into which the portage comes from Loon Lake. This point rises about 75 feet. The top, represented by this rock, containing augite, plagioclase, magnetite and a little hornblende and quartz, is of the rock that usually forms the tops of the high mono-clinals of the country—a dioryte trap, perhaps a metamorphic condition of the beds of the great quartzyte and slate formation. It faces the lake and has a high talus of fallen blocks.

720. The rock of the westerly of these points, almost identical with No 718, essentially the same rock as 719, presenting a walled face toward the north, much jointed, or finely basaltic, rather finely crystalline, but rising but 10 feet above the lake. Thus it appears to make no difference at what horizon samples are taken from the "quartzyte" formation, if they only come from the *top beds* at the place they are obtained. They are always "changed quartzyte," or trap, so-called. Slate can be got only at a depth of 75 to 100 feet below the top. It seems as if any and all the beds are subject to this metamorphism when they happen to be superficial, unless these be unknown and unsuspected irregularities in the stratification. Hence, even at the very northern edge of the area covered by these mono-clinals, the changed rock, or trap, whichever it be, lies within a few rods of, and nearly on the same level as the talcose slate and syenite, as along Gunflint river.

721. A careful section of the hill was taken, lying a little east of the portage trail from Gunflint Lake to Loon Lake, on Sec. 26, T. 65, 3 W., for the purpose of ascertaining what relation might exist between the basaltic beds which always lie on the tops of these hills and the slaty layers that compose them toward the bottom, with the following result: No. 721, forming the top of the hill is 75 feet thick, and like numerous other samples already noted, viz., Nos. 308, 705, 708, 709, 719 and 720. The hill is 250 feet high.

722. Obtained about half way down the perpendicular portion of the bluff. The same as the last, but finer-grained. It has also a darker color. It embraces apparently triclinic feldspar, magnetite, orthoclase, viridite and a little quartz. It also shows an occasional grain of pyrite and of dichroic hornblende.

723. A dark, or gray, homogeneous rock, in general character similar to the last, though of a finer grain, resembling very much the rock No. 683. It has pyrite, and much of the magnetite is arranged in branching, foliage-like tufts, which can be seen in a thin section, from near the bottom of the perpendicular part.

724. One foot lower in the bluff than the last. Undistinguishable from the last.

725. Six inches lower; same rock but finer. This is hard, fine, dark-colored.

726. A foot lower; the same rock but finer, and tending to a slatiness.

727. Four feet lower; slate, fine, black or nearly black, of the kind commonly seen in these bluffs. The rest of the bluff is much hid by talus, but so far as can be determined consists of rock like 727. A hundred feet lower, and but a short distance north from the foot of this bluff was obtained No. 720, forming the top of a lower ridge of rock.

The transition from the basaltic rock, or trap, forming the top of this hill (No. 721) to the slate of No. 727, is more abrupt than on the south side of Loon lake; but there is still here an imperceptible transition. There is no suddenness about the change, nor break in the bedding to indicate the former fluidity of the top of the hill. The change is complete in the space of four feet—from basaltic columnar structure to perfect, horizontal, or southward dipping slatiness. If the basaltic portion is due to igneous origin there was such a transfusion of mineral characters, and such a perfect cementation between it and the slaty portion that no line of separation where the igneous portion was superimposed on the sedimentary, can be designated.

A second visit was made to the locality No. 312, on the north side of Gunflint lake, where the flint beds appear in outcrop, about half a mile east of the outlet of the lake, at which the following conclusions were reached:

1st. The rock is a breccia in which the flint, generally black, or dark jasperoid, appears in a gray rock which weathers rusty, in angular pieces of all sizes up to two feet, or even makes continuous beds more or less tilted and broken. Sometimes also the gray rock that weathers to a rusty color on the beach is in angular pieces or patches in a mass of angular pieces of non-rusty gray rock; and sometimes the two alternate in parallel bands as if so deposited as sedimentary beds at first.

2nd. The formation, as it is, is tilted into the lake, southward, at an angle of perhaps ten degrees, on an average, though there are places where the dark jasperoid layers seem to stand nearly vertical.

3rd. The whole formation is rudely basaltified in small columns.

4th. The thickness visible, in an interrupted series of outcrops, seems to be about twenty feet.

5th. A little distance further west, and near the extremity of the point before reaching the "narrows," the exposed rock is slate again, at first horizontal, and then with a dip of eighteen to twenty degrees to the N. E. then S. again; becoming hid by trees the rock terminates, and the point too, the elevation of the hill being forty to fifty feet.

The close proximity of this flint and jasper locality to the next great underlying formation (syenites and slates) makes it one of great interest to the geologist, but so far as scrutinized, as yet the true relation of the two formations are not revealed by anything here seen, though there seems to be an unconformability between them. At the "narrows" is basaltic trap rising in characteristic bluffs and striking E. and W. with a face toward the north.

728. Rock of the island in Saganaga lake nearest the inlet from Gunflint lake, on the south side This is a syenite with mica, containing much coarse quartz. The feldspar is orthoclase, of which the greater portion is white, but some of it is flesh-colored. It is a beautiful, light-colored syenite, suitable for ornamental purposes. This rock prevails about Saganaga lake, but also becomes darker by an increased amount of hornblende.

729. Syenite from "Cariboo narrows" N. E. ¼ Sec. 19, T. 66, 4 W.

Gull river and lake may be ascended by course to near the S. W. cor. of T. 66, 4, without portage, by passing two rapid places. Gull lake is thirty-nine feet above Saganaga. A portage is necessary at the third rapids. Gull lake is similar to Saganaga in having numerous islands based on a light-colored syenite.

W. Gull lake, which is united by a short rapid stream to Gull lake, is twelve feet higher, and is filled with the same sort of rocky islands.

730. Syenite from the rapids between Gull and W. Gull lakes.

Along the south side of these lakes, distant about two miles, runs a range of mountains which seems to be a continuation of that running west from the south shore of Gunflint lake, marking in general the northern limit of the slate and quartzyte group.

731. The rock 730 continues to form the islands and shores of W. Gull lake to near the point where the stream from Frog-rock lake enters it, near the southwest end, where the rock 731 takes its place, rising in little hills of very similar contour and size, some of each rising 50 to 100 feet. This rock is very tough, greenish, has in general an imperfectly schistose or fibrous structure, is seamed and jointed finely, some of the seams being filled with a fine-grained, siliceous, nearly white rock, or pinkish quartzyte, which is faulted frequently by other seams, making a zigzag network of joints and seams. Some of these

seams are of a pinkish color, and six to ten inches wide. But they are themselves broken and often entirely diffused and lost. The rock is not slaty, but separates under the hammer into rude rhombs. It is fine-grained. (V. Nos. 348, 355, 356, 358.) This rock in thin-section shows a matrix which is homogeneous, transparent, penetrated by the other minerals, and between crossed Nicols has a neutral color, darkening on rotation of the stage, with the quick limpid change characteristic of quartz, but not having its brilliancy. The other chief mineral is green fibrous hornblende, but it is so changed that it is rarely dichroic, and is often more like serpentine than hornblende in its optical characters. There are also a few grains of some triclinic feldspar. This composition seems to make this rock an amphibolyte. In land specimens it is not distinguishable from the amphibolyte of Littleton, N. H.*

The stratigraphic relations of 730 to 731 are not easy to make out. Sometimes they lie immediately in contact, the plane of separation being perpendicular, and sometimes they are in separate knolls, or hills, contiguous, the contact of which below the soil is not visible. In general the hills composed of the amphibolyte are higher and rougher than those of the syenite.

732. Light pinkish granulyte, or quartzyte, embraced in veins in No. 731.

733. Frog-rock lake, which is next west of W. Gull lake, is so named from the Chippewa word which signifies *spotted* or *greenish*, from the appearance of the rocks, and it is seventy-three feet above Saganaga. The mineral which gives green color to the rocks of this region appears sometimes in thin seams or in coatings on opened seams, as shown by the samples of this number.

734. This greenish rock in some places is very fine and tough, and also porphyritic.

735. At the very entrance to Frog-rock Lake is a hard, massive, speckled dioryte that forms a little fall where the water goes out of the lake In passing the portage, white quartz is seen in pockets in this rock (731 and 734) sometimes having perfect crystalline terminations.

736. From an island in Frog-rock Lake, about half a mile southwest from its outlet; a green amphibolyte (?).

737. A talcose or chloritic rock, having a coarse perpendicular schistose structure, from the rapids between Frog-rock and Town Line Lakes, northwest from Frog-rock Lake. This is conglomeritic, some of the pebbles being six inches across and like the gray amphi-

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*No 216, of the "typical rocks of New Hampshire," or No. 3,016 of the Museum Register.

bolyte (No. 731). There is in it also considerable pyrite. The pebbles are rounded, and are intimately connected with the matrix. There may be thirty feet of this here visible, including that below the water and above. There seems to be a S. dip of about 10 to 15 degrees. The aspect of the country changes at once on entering on this conglomerate. There are no bald, rocky hills to be seen around the Town Line Lake, but the trees grow all over the rock, and down to the water. The level of this lake is 83 feet above Saganaga, and King-fisher Lake (or Ogishki Muncie) is ten feet higher. The rapids connecting them are formed by the same rock (737).

738. A fine, firm conglomerate, or grit, containing considerable pyrite which changes to iron oxide near the surface The grains are mainly of quartz, as well as of flint and feldspar. Some of the flint is black, and two inches across. This rock recalls the Gunflint beds. It seems also that the rock 737 is a part of the same conglomerate as 738, but at a lower stratigraphic horizon. It hence seems as if the Gunflint beds, which are the lowest part of the quartzyte and slate series (the lower volcano of Logan) pass by a common metamorphism through the perpendicular slaty, or schistose structure into the slates of the Huronian—but whether at first conformable to them or not, cannot be said yet. This rock (738) does not continue far west of where it appears, which is near the N E. end of Ogishkie Muncie Lake, on the south shore. It stops at the first narrows, at the east end of the lake apparently jogging off south suddenly, since the rock 731 sets in in full force on the south side of the lake on the W. of these narrows, and continues to one-half mile west of the section line between sections 13 and 24.

739. At one-half mile W. of the section line; somewhat quartzyte, firm and resembling 738. This occurs suddenly in No. 731, and it weathers into large angular blocks, while No. 731 is apt to weather out in rough schistose fragments.

Directly across the lake, on the north shore the rock 738 can be found again appearing in a similar manner as on the south side, *i. e.*, in a bluff and hill near the lake, but 731 appears soon on the south side, and with sundry variations forms the south coast to the peninsula on the south shore crossed by the line between Secs. 23 and 26 which is made up of the quartzyte and slate, having a dip to the S. S. W. of about 80 degrees. The slate alternates with the quartzyte beds, the former being in layers generally of two to three inches, and the latter in beds of six inches to two or three feet. There is in the slate, which is slaty in the direction of the true bedding, also a tendency to slatiness E. and W. perpendicularly, so that the beds are apt to separate, when struck, both in the direction of the true bedding and along the weathered planes of the E. and W. slatiness, making thin lenticular wedges. This E. and W. slatiness is not visible in the quartzyte. The same alternation of slaty and non-slaty beds is to be seen on the S. shore of Vermilion Lake, and at Thompson.

740. Slate from the above.

741. Quartzyte from the above. This is much like No. 738.

742. Dyke-rock, from a dyke cutting the great conglomerate of Ogishkie Muncie Lake, N. W. ¼ N. E. ¼ Sec. 26, T. 65, 6 W. Plagioclase, magnetite, chrysolite, a little hornblende (?), a little quartz pierced by spicules of apatite and pyrite. This dyke is six and a half feet wide and runs E. 10° S. It crosses a little peninsula, and on both sides disappears below the water of the lake. It is a dark, heavy, firm rock, not differing from numerous others seen crossing the great quartzyte and slate formation.

743. Calcarcous, rusty schist, apparently talcose, and overlying the next; this has a strong resemblance to the conglomerate schist No. 737. It is coarse, and seems to disintegrate more readily than any of the rocks of this region. It is in the lower places. It has no evident dip, or bedding, but a schistose structure running E. and W. perpendicular.

746. Associated with the last is a grayish marble, which may also contain siderite. They are in the N. E. ¼ N. E. ¼ Sec. 26, T. 65, 6 W. The marble rises in an inconspicuous low ridge, in a valley. It is coarsely jointed, and has an apparent dip toward the south of about 10 degrees, and is 22 feet thick.

744. From the great conglomerate, but showing one of the indeffinite conditions of the same. The conglomeritic character is hardly distinguishable on a fresh fracture of the rock which sometimes shows different shades of green. But all over the surface, when glaciated and weathered, are visible the forms of rounded boulders, included in the rock, the different colors and grain of the boulders being brought out plainly. This is essentially the same formation as the rock 743 and 737, and it constitutes by far the greatest part of the country rock about Ogishkie Muncie Lake. Wherein the rock 737 differs from 738 which also passes into 744 by the accession of slaty structure and then the obliteration or modification of it by the accession of boulders, it may be ascribed to varying proximity to and influence of the underlying "talcose" rocks in the process of deposition and metamorphism. The rock 744 forms the little island in the central narrows of Ogishkie

Muncie Lake*, near the peninsula crossed by the line between sectinos 23 and 26, and the mainland south and north. On the island, it is a real conglomerate, with a smoothly glaciated surface, and the sections of some of the rounded stones are a foot and even more in diameter. They are very abundant. Sometimes the rounded stones make three-quarters of the whole rock, but in other cases the slaty matrix is nearly free from them, over considerable areas. The general surface rises in short, zig-zag ridges which, though often entirely bare, have boulders and a thin soil of clay and mold in the valleys between them, so as to obscure their inter-relations. In these valleys are a multitude of fallen, half-burnt trees, among which are growing small birches and willows (V. after 752).

There is a sudden change in the direction of strike of the rock of the country, in the N. E. ¼ of Sec. 26, from nearly E. and W., to N. and S. At the shore on the peninsula in Sec. 23 it is the same as the slates generally seen in the Huronian, in this part of the State, but after passing the valley in which are the calcareous schist and the marble, it is N. and S. That the change is somewhat sudden is shown by the fact that the beds running N. and S. are seen to cease abruptly and to be replaced by the conglomerate in a number of places. The conglomerate in these cases is, so far as seen, rather finer than the average.

745. Slate and quartzyte, from the rock that strikes N. and S. (as above), showing the bedding of sedimentation, the tendency to E. and W. schistose structure, and the jointage to which the whole is subject.

746. (See before 744.)

747. Directly south of 745, (on the lake shore) *i. e.* in the S. W. ¼ S. E. ¼ Sec. 26, is the hard, black rock represented by this number. It is a kind of black quartzyte, or flint, the dip of which cannot be stated. It is finely jointed or broken, nearly at right angles transversely, occupies the area of a small ridge near the shore.

748. On the portage from Ogishke Muncie lake to Dyke lake, which is a little lake southwest from Ogishke Muncie in S. E. ¼ Sec. 28, is a siliceous slate, standing vertical. It is cut by a dyke running about N. and S. thirty to forty feet wide.

749. Rock from the above dyke; dark dolerzte.

750. Conglomeritic slate. This passes into the slate 748. It shows no bedding. From the north side of Dyke lake.

751. S. E. ¼ Sec. 30, T. 65, 6 W. north of the east end of Caca-

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*With one exception this is the only island which has its forest yet standing; most of the country being utterly destitute from fires.

quabie lake, is Mallmann's Peak. It extends rather as a lower range toward the N. E. half a mile, terminating at the end of the lake in the northern part of Sec. 29. This rock is a peculiar porphyry. The ground mass is amorphous, and the disseminated crystals are hornblende. It is unlike any thing before seen.

752. A dyke forty feet wide, represented by this number, cuts the last. This is a doleryte with considerable magnetite and pyrite.

Further examination of this great pudding-stone on the high peninsula that projects from the north shore of Ogishke Muncie lake, on Sec. 23, shows that it is crossed by E. and W. bands due to sedimentation. These bands stand nearly or quite vertical. They are similar to those seen in the quartzyte and slate, but are coarser and more indistinct. They are seen in the finer parts of the pudding-stone, when the rock passes into a fine conglomerate or coarse quartzyte.

On this peninsula nearly one-half of the pebbles in the rock, large and small, are from the Saganaga granite. Next in frequency is a variety of greenish pebbles, apparently from the same formation, or at least from the rock 731, and some like the dyke rock 742. Next comes quartzyte, which is sometimes gray, sometimes white. These graduate into white and gray pebbles, some of which are also black and very fine, like flint, having a short conchoidal fracture. Some of these last are banded like the jasper and flint of the gunflint beds. One banded piece of black-gray flint which was noted was a foot across. These various pebbles weather into a variety of colors making the face of the bluff perfectly spotted and mottled. The conglomerate is a part of the slates of the region, and is interbedded with them.

About three-fourths of a mile north of the central narrows of the lake, the conglomerate, which continues all the way, with a dip S. of 80 or 90 degrees, (sometimes varying a little to the S. E.) contains large, rounded pieces of the "Saganaga granite," which proves the greater age of that granite, and the unconformability of this slaty conglomerate, and the beds that are its equivalent elsewhere, upon that older formation. Some of these large pieces of syenite are over two feet in diameter. The conglomerate also here contains red jasper.

At about a mile north of the narrows the red jasper becomes very common, some pieces being six to eight inches across on the face of the rock.

At about a mile and a quarter north of the narrows the conglomerate becomes finer and finer, and the slaty bedding comes in, the whole being converted to 740 and 741, and at once the hills rise in a rude range, broken by off-sets, to the height of 150 or 200 feet higher than the general level. The highest hill is about in the center of the S. W. ¼ Sec. 14, and the top consists of the rocks 740 and 741, passing to 731, with vertical bedding. The strike of the northern limit of the conglomerate is S. 35° W. and at about one and one-fourth miles N. of the central narrows. Through the whole of this distance the dip is nearly uniform (80° to 90° from the horizontal); and by the construction of a right angled triangle a calculation will make a thickness of 6,574 .8 feet, for the conglomerate on the north side of Ogishke Muncie lake, and there may be as much more on the south side.

753. Is an average sample of the most of the hill on S. W. ¼ Sec. 14, T. 65, 4 W. (as above.) It represents a vast amount of rock in this country, since much, even of the conglomerate, is of similar rock. This here is banded with finer beds, approaching slate, which, when favorably weathered, falls to pieces as slates, though very siliceous.

From this hill the mountain-range on the south side of Ogishke Muncie lake can be seen to extend east as far as the eye can distinguish, and probably to Gunflint lake. The point of observation is E. 33° N. from Mallmann's Peak. Part of Knife lake is W. S. W. Toward the N. W. is a lake one-fourth mile away. East 33° north, is another small lake one-fourth mile distant, and at the foot of the hill S. is another little lake. Toward the north is a similar tract of country, burnt over, running to Otter Track and Knife lakes, made up (probably) of the rock No. 753, as no such conglomerate was seen along there last year.

754. Jasper conglomerate, one mile north of the central narrows of Ogishke Muncie lake.

The "Gunflint beds," south of Gunflint Lake, (V. after No. 747) have been associated with the slates and quartzytes of the overlying formation, rather than with the talcose slaty beds underlying (V. 426) but observations about Town Line and Ogishkie Muncie Lakes seem to indicate that they are here a part of a schistose, slaty formation, highly inclined, which belongs to the Huronian, passing into the great conglomerate of Ogishkie Muncie Lake.

So far as can be determined by the observations made, the following statement of the order of superposition seems to be warranted, in descending order (V. after 551).

1. The nearly horizontal quartzyte and slate formation composing the hills of the Grand Portage and the International boundary as far as Gunflint Lake.
2. The coarse grit or fine conglomerate, No. 738.

3. The Jaspery and calcareous beds that are known as the "Gunflint beds," Nos. 737 and 743.
4. Gray marble, No. 747.
5. The tilted, slaty conglomerate, and the great conglomerate, about Ogishkie Muncie Lake, Nos. 744, 750 and 754.
6. The amphibolyte and the chloritic slates, Nos. 731, 753, 348, 349, 350, 355, 356 and 358.
7. Mica schists, and alternations of mica schists and syenite, Nos. 335, 337, 339, 401, 406, 408, 414 and 417.
8. The syenites and granites of Saganaga and Gull Lakes.

There is yet one very important, undetermined question relating to this generalized section which ought to be borne in mind, viz: Is the great quartzyte and slate formation of the international boundary (No 1 of this section) the same as the highly tilted, slaty and quartzyte formation which passes into the great conglomerate? (No. 5.) There are some considerations which seem to imply that it is, though in all descriptions and sections they have been treated as different terranes. (a)Where the horizontal slates approach the syenites at the east end of Gunflint Lake there is nothing to be seen of any beds representing the tilted slates. The syenites and their associated schists come on at once. (b)Where the tilted slates and the conglomerates associated with them are traceable from the syenite upward to the gabbro as south of Ogishkie Muncie Lake, there is nothing to be seen of any beds like the horizontal black slates of No. 1. (c)The "Gunflint beds" appear to belong to the horizontal slates of the international boundary at Gunflint Lake, but their supposed equivalents at Ogishkie Muncie Lake belong to schistose and tilted slates and conglomerate. (d)Although the horizontal slates and quartzytes of the international boundary strike west and southwest across the State, forming one of the most important topographical features of the northern part of the State, and can be followed for many miles as such, yet they are lost entirely in the region of the upper St. Louis, and the tilted slates are the only ones seen where that river cuts the rock at Knife Falls and below. (e)The great gabbro belt, which surmounts the horizontal slates along the international boundary, and prevails to the east and south of their line of strike, is seen to pass to the west of Lake Superior, at Duluth, and to disappear from sight suddenly between Duluth and Fond du Lac as if its continuance depended on the maintenance of the horizontal formation with which it is associated. (f) Where the Gunflint beds become a jaspery hæmatite, as south and east of Vermilion Lake, the structure of the tilted slates passes into the iron ore as if of the same formation. (g)The formation which underlies the cupriferous at Fond du Lac is the tilted slates, and that which underlies it at Grand Portage is the horizontal slates.

A thorough examination of the hill-range between Gunflint and Ogishkie Muncie Lakes would probably reveal the facts as to any transition from the horizontal slates to the tilted slates.

In going south from Ogishkie Muncie Lake toward the mountain range, so as to strike the summit on Sec. 34, the dip and strike of the rock are seen to change several times. At the shore is a fine conglomerate, then quartzyte and slate in contorted bedding, then the same with a dip east, then the same with a dip northeast, then south, then coarsely arenaceous without any distinct dip, apparently once broken. then vertical with strike N. and S. South of the crossing of the creek. about half way from the lake to the summit, the rock is very confused (apparently brecciated and recemented), and the bedding cannot be made out. Then the dip is west, verging to southwest.

Although this is not all conglomerate, on close examination it seems to show in the field such variation as can be referred, very much of it, to an original conglomeritic condition. In approaching the summit this condition is less and less apparent, the stones gradually losing their identity in a common, more homogeneous mass.

South of the foregoing interrupted series of hills, occupied by the changes described, all pertaining to the conglomerate—quartzyte—slate formation, is the first ridge. The rock is rounded and smoothed by glaciation, though the direction of movement cannot be ascertained by any preserved striæ. There is a sudden change in the character of the rock of the hill in passing to the ridge.

755. The rock of this ridge is a greenish, tough rock, much like that of No. 731 in outward character, rather fine-grained, has numerous quartz veins and seams, and forms a large area and ridge on the mountain side. While outwardly it appears like No. 731 it has the mineral composition that more resembles a dark, fine dioryte (V. 684 and 678).

756. Passing further south, crossing a valley, another ridge is met with, rising higher, consisting of this rock—a coarsely crystalline dioryte, with a little quartz and magnetite, the hornblende being changed to viridite. It is cut by—

757, a gray, rather fine, trap-rock, in a dyke running N. W. and S. E., six feet wide.

Further south is another higher, bare ridge, broad and smooth, constituting the top of the mountain. The rock is—

758, a "trap" of a greenish color.

759. Occurs in patches in No. 758 and is like No. 756, but contains so much magnetite as to appreciably increase its weight. This is from the summit south of Sec. 35, about one fourth mile.

Of the rocks constituting the mountain east of Twin Peaks, Nos. 755 and 758, are the chief mountain-making rocks, and No. 758 is the most important, spreading a great distance still further south (judging by the form and color of the hills in view), and also probably a great distance east. Indeed, it is probably the rock that constitutes the divide, south of Gunflint and Tucker lakes, this range being visibly a continuation of that.

In passing from Ogishkie Muncie lake directly to Twin Peaks, the following observations were made by Mr. Mallmann. After a space of conglomerate, perhaps one half a mile, there is a gorge in which a creek runs S. 30° W., the rock over which it passes being—

760. A light siliceous marble, or calcarous quartzyte, undistinguishable from the marble, No. 746. On either side of the gorge is a wall of rock. On the west is conglomerate, and on the east is No.

761. which is a pyritiferous, dark aphanitic rock, one of the conditions of the slate of the slaty conglomerate.

762. Is from a trap dyke cutting the conglomerate, about one fourth mile from the lake.

South from the gorge is more conglomerate and quartzyte, then a ridge, or a succession of benches rapidly ascending. The first bench, 20 feet high, has regular bedding, and dip toward the south, but no basaltic structure. It consits of No.—

763. Which is apparently closely allied to No. 755.

764. In a higher ridge is this rock, which is the same as 763.

765. The top of the Twin Peak (E. Twin) is a fine-grained variety of the same rock. This peak, and the general average of the mountain range may be 500 feet higher than Ogishkie Muncie lake. The Twin Peaks are conspicuous because they stand isolated, further north than the rest of the high land, not because they are higher.

Fox lake, which is 141 feet higher than Saganaga, affords a fine exhibition along its south shore, of the broken condition of this quartzyte-slate-conglomerate formation. The bluff rises nearly perpendicular, but is somewhat rounded off by glaciation, and the edges of the bedding cross the face of it in a very tortuous and angular irregularity. Some of the beds which are nearly horizontal are terminated at one place by a perpendicular line, on the other side of which the beds are nearly vertical. In other places the bluff shows both synclinal and anticlinal bends.

Ash lake (or Agemok lake) is 200 feet above lake Saganaga. On the portage from Fox lake to Ash lake the formation strikes S. E. and N. W., with a dip S. W. of 60° to 80°, the most of the way. It then changes suddenly to a strike S. W. and N. E., and then soon becomes confused in a general breccia. Near Fox lake, where the beds strike S. E. and N. W., there is a ferruginous belt. Through about four feet the hard slates are rusty with hæmatite. The pieces are also feebly magnetic, but there is not enough iron to be of any value.

766. Iron ore near Fox Lake.

Gobbemichigomog lake is 210 feet above Saganaga. At its west end, just west of the town line is a northward facing hill of bedded trap, and a low range runs along the south side of the lake, but the main hill-range strikes along north of this lake, jogging a little to the north.

767. From the south side of Gobbemichigomog lake. A fine-grained heavy rock of a gray color, resembling the rock No. 677, evidently having much chrysolite.

There are several short perpendicular bluffs of bedded trap, some of it approaching the last in characters, along the south shore of Gobbemichigomog lake; and one of them is quite ferruginous. They rise from 20 to 40 feet. From one near the lake is obtained—

768. Somewhat irony trap, with chrysolite and mica.

Crooked lake is 217 feet above Saganaga, and Little Saganaga is 225 feet. About Crooked lake the country is wholly in the trap of the Mesabi. It rises in numerous knobs that make rounded, bare islands. The same rock continues to and into Little Saganaga lake where it also causes many islands. In some places it rots and crumbles easily as at Beaver Bay.

769. Trap, from the N. W. end of Little Saganaga.

770. On the south side of Little Saganaga the rock weathers white. It rises in higher bluffs, resembling the Rice Point gabbro, and even approaching the whiteness and nearly the purity of the so called "feldspar rock." It is mainly of feldspar but also contains magnetite and a little pyroxene. The hills and ridges show in general a course bedding which dips south. Ridges 10 to 50 feet high. The sample collected is weathered. Boulders of iron ore like that of Mayhew lake, are scattered about.

East-and-West lake is 231 feet above Saganaga.

771. Pinkish-red vein of syenite in rock No. 770, dipping E. 75°. It is 20 inches wide, on the south shore near the east end of East-and-West lake. This red syenite here is comparable to the red syenite asso-

ciated with the gabbro at Rice's Point. In both places it penetrates irregularly through the gabbro.

The lake in Frog Rock river is 241 feet above Saganaga. On the portage north from the lake in Frog Rock river are to be seen several veins of red syenite in the feldspar rock of the country, like 771 dipping E. The dip is generally south, about 50°, but is also S. E., E., S. W. and even N. W.

772. From a vein, one foot wide, of this rock in the neighborhood of the east-dipping red veins. This is coarsely crystalline, and consists of the usual minerals in the gabbro of Rice Point, but also here seems to have quartz and mica, perhaps derived from the red rock with which it is in close association. This whole formation resembles "Rice Point granite" in outward characters, and in mineral composition. It sometimes decays in round masses, as if at first a conglomerate, in the same manner as near the Duluth depot. (V. No. 4 A.) The last lake in Frog Rock river is 258 feet above Saganaga. Passing from this lake by a long portage toward the southwest, the Mesabi lake is reached, 338 feet above Saganaga lake.

773. Rock of the country, about the last lake in Frog-Rock river. It is a gabbro. This formation not only seems to be the "Rice Point granite," and the iron-bearing rock of Mawhew lake, but also to have furnished the feldspar masses of Castle Danger and Beaver Bay. The portage from the last lake in Frog-Rock river to Mesabi lake rises 150 feet, and passes nearly all the way over this rock. Merabi lake is 70 feet lower than the divide, and its outlet is toward the north, uniting with Frog-Rock river.

The same rock continues nearly across the portage to Duck lake, where another formation sets in, viz:

774. This comes in apparently *through* No. 773, at first, but afterward it lies on 773, and in rude lenticular and broken bedding dips to the south. It forms a range of hills about 100 to 150 feet high next west and south of Mesabi and Duck lakes. It has been molten, as evidently as 773, and in that sense it is an igneous rock, but it differs from it in its mineral composition. It is a reddish syenite, but seems to contain mica, as well as some plagioclase. In passing along Duck lake considerable confusion prevails in the relative positions of Nos. 773 and 774. Along the south side of the point that separates the lake into N. E. and S. W. parts, No. 774 plainly lies on parts of No. 773, but on the east side of the lake, there is considerable mixing, the two changing places suddenly, and either one being in patches in the other

—particularly 774, embracing masses of No. 773, and suddenly cutting No 773 like dyke-rock.

775. At the S. E. end of Duck lake 773 lies on 775, which is the well-known and so-called "red granite." This lies in even and regular beds of four to eight inches, (or in beds of three to four feet), dipping south, amounting in all to about twenty feet, the rock 773 being unconformable on it, but intimately cemented to it, as at Rice Point. Over both of these, further toward the S. E. No. 774, comes in again. (V. 776.)

Duck lake is 345 feet above Saganaga.

L. lake is 413 feet above Saganaga.

The portage is along the stream between these two lakes and is over the rock—

776, which is seamed and blotched with the red rock 775 and appears to be affected by it throughout. This rock prevails through this portage with occasionally a characteristic patch of No. 773—as seen at the south end of the portage. At the point where the portage leaves L lake is a bluff at the left made up of the following (777-780.)

777. A characteristic gabbro, seamed by red syenite, and weathering nearly white, porphyritcally, so as to appear much like No. 773. This passes downward into—

778, which was obtained about thirty-five feet below the top of No. 777 and near the next. This is apparently a form of the gabbro when in closer contiguity with the sedimentaries and has been penetrated by minerals from them. It is finer-grained than No. 777 and darker, but also seems to have orthoclase and mica. These together, make a thickness of about forty-five feet, from the top of the bluff downward. They are one in structure, dip and general characters. They dip south in heavy layers at an angle of about thirty degrees.

779. Red syenite, unconformable under 778, showing about fifteen feet. What appears like bedding in No. 779 may be coarse jointage, as there are two sets of planes, one set being perpendicular to the bedding of the gabbro overlying, and the other crossing it so as to have a dip south of about seventy degrees.

780 is a form of the rock in the same bluff about twenty feet below the top—evidently a part of the igneous rock, but affected by proximity to the underlying rock so as to appear like a dioryte.

There is a striking contrast in the appearance, form and color of the rocks 777 and 779.

Wind lake is 473 feet above Saganaga lake. On the portage to Wind lake the rock No. 777 is the prevailing rock at first, but is varied by patches of red rock, and a fine-grained rock like No. 778. Then—

781 prevails, cut by seams of red rock like the last, and having sudden variations to Nos. 777 and 778 and even to No. 774. This is a light-colored, fine, syenitic granite. The red rock continues to increase in area till at Wind lake, nearly one-half of the visible area is of red syenite, the rest being some of the rocks 777 or 781. The most of the surface is bare rock and can be examined easily. The red syenite is in the lower parts and the other rocks are in the higher. It always appears to come out *under* the others when it appears in bulk and indicates its proper relation to them. The red seams which pass upward into the dark rocks are exactly simulated by the same relations of the gabbro and the red syenite at Duluth, and this place must be at about the same geological horizon. There is much reason to regard the rocks 773, 774, 776, 777, 778, 780, as all phases of the same great formation, an igneous rock which flowed over 775 and 779, and in contact with them was modified into the various textures and degrees of fineness that they illustrate; and that the red rock, which must be regarded as the red formation of the Brulé and the Great Palisades, in the process was fused and injected into them. This red formation, which makes red syenites and gneisses, belongs in the lower portion of the cupriferous, as hitherto classified, and seems to be the same that in Michigan has been grouped by T. B. Brooks in the Huronian.*

Along the north side of Wind lake, these formations, the red and the gray, are somewhat interbedded, and so brecciated and mixed that the bluffs are spotted promiscuously with the two colors. Sometimes, also, they seem to have been fused and blended into a rock that is neither red nor gray.

782. A micaceous quartzyte, of a light red color, from the S. E. side of Wind lake. This is less granitoid than usual, but is still a part of the red rock formation.

783. A micaceous brown quartzyte, of the same series of rocks, from the S. E. side of Wind lake. This is one of the metamorphosed sandstones of the cupriferous.

At the place where the portage trail leaves Wind lake is a bluff which in form is a duplicate of the red quartzyte bluffs at New Ulm, and in Rock and Pipestone counties.

784. Is from this bluff, and constitutes the most of it. It is a hard, red, fine, sub-granitzed quartzyte, somewhat sprinkled with darker specks, that may be chloritic or micaceous, or graphite, and having

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*Am. Jour. Sci. (3), XI. p. 206.

rarely a distinct crystalline grain of orthoclase. It is in distinct sedimentary layers that dip S. at an angle of 20° to 25°.

785. In irregular patches and areas, on the face of the bare bluff, rounded off by glaciation, may be seen this rock, which is a true igneous rock, nearly black, fine-grained, a trap-rock, a form of the gabbro such as is seen along the Lake Superior shore where the molten material was rapidly cooled in contact with the sedimentaries. This is a phase of the igneons rock of the country. This bluff throws light on the geology of the southwestern part of the State. If this gabbro belongs to the cupriferous, and these red gneisses also, then may not, not only the red quartzytes (Sioux quartzyte of Dr. White, and the Baraboo quartzyte of Wisconsin), but also the contiguous red gneisses and granites of the Upper Minnesota Valley? In other words may not the red gneisses and granites of the Upper Minnesota Valley be in the extension of the great modified cupriferous, where instead of an actual molten outflow, or series of outflows, the disturbing agencies operated to produce a widespread and complete metamorphism in the contemporary strata? Those granites and syenites differ widely from the granites of Saganaga—the only ones known to lie below the great conglomerate of Ogishke Muncie. Though the rock of this bluff is not a pure red quartzyte, in other places this red rock is a pure quartzyte which can hardly be distinguished from the quartzyte of New Ulm. At the same time there are portions of the southern red quartzyte that are as much granitized as the rock of this bluff. This is particularly true of the outcrops at Baraboo, Wis.

Spotted Rock lake is 520 feet above Saganaga. This lake is so named because of the mixture of red and gray rock as described at the south end of Wind lake. Here it is all about the shores, the red gradually increasing in area, and rising into hills.

At Little Saganaga lake were a few green trees of Jack pine (Pinus Banksiana) about three or four inches in diameter, but south of that lake the country has been twice burnt over, as at Ogishke Muncie lake, so that it is almost bare of vegetation. The first burning destroyed the large trees, and the second, in burning the fallen forest, killed the new growth, which was then one to two inches in diameter. About Little Saganaga this young growth escaped the second fire; but in nearly all parts of this traverse the country north from Young Sawbill lake affords unrivalled opportunity for unraveling the geology of this much-studied but little-known horizon of the earth's crust.

Leaving Spotted Rock lake the canoe route passes over a long rough portage trail, crossing the hill range known as the ***Mesabi Range.***

This range seems to be the westward extension of that in which is Brulé Mt., while that "Mesabi" which passes near Gobbemichigomog lake has been distinguished sometimes as the Giant's Range. Sawteeth Range is near the Lake Superior shore. The Mesabi range rises where the trail passes it, 676 feet above Lake Saganaga, or 1,592 feet above Lake Superior. The dark rock which is mixed with the red granite formation continues to the top of the Mesabi, having its usual changes of texture, and a few spots of red rock. But before reaching the summit the texture becomes what is shown by—

786 without much variation. This is from near the top of the range. This is rather fine, heavy and chrysolitic. After passing the summit the formation is occasionally coarser, and even takes the characters of No. 773 in small patches and veins.

787. Its prevailing features on the south slope are shown by this number, which is like other samples from the same formation elsewhere, a rather fine chrysolitic gabbro, which continues to South-side lake. From the top of the Mesabi range can be seen both the Giants range of hills and the Sawteeth mountains.

South-side lake is a tributary of Temperance river.

From South-side lake the course pursues a slow-running river to Sawbill lake, with ridges of rock No. 787 on either side rising about fifty feet, or less, occasionally with a little show of the red rock, but generally free from it. From Sawbill lake the canoe enters a swamp through which the same river flows, to a rapids, where, after a short portage, a lake is reached in the same stream, the same rock continuing. This is known as Young Sawbill lake, and by our aneroid is found to be 454 feet above Saganaga lake. At the rapids the same rock appears, but about Young Sawbill lake the country is drift-covered, and about the S. W. end of this lake the native forest is green, having escaped the fires. This, however, does not continue far, for at the south side of Rat lake the forest is fire-killed. No rock is seen on the portage from Young Sawbill to Rat lake, but where the trail leaves Rat lake for Burntwood lake the same rock as the last appears.

Rat lake is 459 feet above Saganaga, and Burntwood lake is 439. These are both tributary to Temperance river.

On the portage from Rat lake the formation is mixed with the red syenite. It shows the characters of the Rice Point gabbro, and irony patches like dykes, having much magnetite.

On the east side of Burntwood lake the same rock can be seen in place, but the prevalence of drift and the greater amount of vegetation, makes the examination of the geology of the country more difficult, and the idea one can obtain is more general than in the country north of the Mesabi range.

The portage to Temperance river passes over a range of low hills made up of rock like much of that already mentioned, belonging to the same formation, but somewhat darker colored, with magnetite and hornblende, approaching dioryte.

788. Dioryte from the E. side of Burntwood lake, the rock of the country.

789. From the portage trail to Temperance river lake, but rather darker than the average—a dioryte with much hornblende and considerable magnetite.

Temperance river lake is 417 feet above Lake Saganaga. This lake, which is nothing more than an expansion of the river is terminated by rapids which have a descent of eight feet. On the portage round these rapids almost the only rock seen as boulders are of the red syenite series. A lower rapid in Temperance river has a descent of thirty feet. Temperance river is rather a succession of lakes, or lake-like expansions. The portage round the last rapids crosses red syenite all the way, seen occasionally in place. The forest is killed by fire over the east half of the portage. At the foot of these rapids is another lake-like enlargement of the river, after which the route ascends by portage, a tributary of Temperance river, and reaches a lake in this tributary, which is found to be 419 feet above Saganaga lake. This last portage passes at first along the foot of and then ascends and continues on a ridge of morainic drift, consisting so largely of red granite masses (from one to six feet) that one could travel the whole three-fourths mile without stepping off them. There is also in the mass occasionally a boulder of dioryte like No. 788 or 789. When burnt the whole country appears red, from the prevalence of this red drift. The next portage leads to a lake in Poplar river, and the lake is given an elevation over Saganaga lake of 449 feet by connected aneroid readings. Through this portage the red morainic drift continues, and along the lake also. Near the lake appears—

790, in one of the ridges over which the trail passes. It seems to make up a large part of the ridge. It is a very fine-grained, gray, metamorphic (?) rock, or fine basalt.

Along the west shore of Poplar river lake are two exposures of the rock No. 790, and from the fact that in one place a lot of red granite is embraced in it, it is judged to be an igneous rock.

791. From one of these exposures, which is almost exactly the same as 790.

Although there is abundance of drift along Poplar river, the red boulders are almost entirely wanting.

Square lake is 444 feet above Saganaga.

Small lake is 437 feet above Saganaga.

There is still a considerable sprinkling of red syenite in the drift along these lakes. New varieties of rock also appear, such as the trap rocks of lake Superior, and amygdaloid. The forest, fire-killed generally since leaving Temperance river, is still standing. Camp lake is 425 feet above Saganaga.

Smoke lake is 411 feet above Saganaga.

Sunrise lake is 399 feet above Saganaga.

Rice lake is 394 feet above Saganaga.

Big Lake is 304 feet above Saganaga.

There are rapids between all these lakes. The long portage from Rice lake S. E. is wholly over drift, no rock in place being visible. The same is true of the three portages last before. The country is rolling and shows many boulders. The stream leaving Big lake is three times the size of that leaving Rice lake.

Sucker lake is 274 feet above Saganaga.

Poplar river, where the portage from Sucker lake strikes it, is 16 feet above Saganaga. The portage between Big lake and Sucker lake is wholly over drift, showing no rock. That also to Poplar river is over a smooth surface of drift, without once showing rock in place. After a descent by river of about five feet, rapids occur which have a further descent of 40 feet, bringing the river here to the level of 29 feet below lake Saganaga. After a further descent of three feet by river the last portage begins, leading to lake Superior, which is found by the series of observations to be 737 feet below Saganaga, or 179 feet less than the series of aneroids of 1878, from Grand Portage.

The Sawteeth Mountains through which the Poplar river passes in a narrow deep gorge, rise above the trail which runs near their base 563 feet, and 1111 feet above lake Superior.

These mountains seem to be made up, here, of the trap-rock of the shore series, but become coarsely crystalline, or porphyritic, gradually, toward the top, as shown by samples obtained at different elevations, viz:

792. From the foot of a hill facing north precipitously. N. E. ¼, Sec. 20, T. 60, 3 W. on Poplar river. This is a high, trap hill, like others in the vicinity.

793. From the foot of the last hill (or nearest Lake Superior), west

side of Poplar river, 600 feet above the lake, similar to the last. A chrysolitic trap.

794. From the same hill one fourth way up. The same rock, with an occasional crystal of twinned feldspar porphyritically displayed.

795. From the same one half way up. The same rock with coarser feldspar crystals.

796. From the top of the hill, 1111 feet above lake Superior. This is the same rock, with more abundant coarse feldspar crystals, the matrix, which constitutes about one half of the mass, being undistinguishable from the rocks 793 and 794.

There may be beds of amygdaloid in this hill, but none were seen. On the very top of the hill is red clay drift, and boulders, and the last portage trail is over a nice plain of red stony clay, gradually descending to Lake Superior—the lower half of it being suitable for farming. The actual connection of this hill with the rock of the shore is not visible along the trail on account of this drift. The only opportunity for tracing it out there would be in the difficult, if not impracticable, ascent of the river gorge itself.

Rocks from various parts of the State.

797. The trap of Taylors Falls, (V. 820.)

798. Porphyritic trap, of Taylors Falls.

The number 797 contains nothing that prevents it being classed as an igneous rock, and it may be of the cupriferous, but the latter (798) has hornblende and orthoclase, as well as epidote, and has the aspect of a metamorphic rock.

799. Light-colored syenitic granite. Saganaga lake: The first island on entering the lake from the east; same as No: 316.

800. Syenitic granite, from the falls of Gunflint river, at the first portage going north from Gunflint lake; the same as No. 315.

801. Gray, micaceous syenite. From S. E. ¼, Sec. 17, T. 35, R. 30, about two and one half miles S. E. of St. Cloud, on the east side of the Mississippi river. A large, rounded knoll of this syenite was opened in 1881 by Saulpaugh & Company for use in the piers of the R. R. bridge over the Missouri at Bismark. It is a rather coarse rock, consisting mainly of quartz, orthoclase, hornblende and black mica. The orthoclase is only in part flesh colored, the rest is nearly white. This knoll covers 25 or 30 acres and rises about 20 feet above the general surface, the longest diameter being E. and W. (a little N. of W.) but oblong. A dyke four feet wide cuts it N. E. and S. W. consisting of heavy trap rock, very fine grained, viz:

802. Trap dyke cutting No. 801 in direction S. W. and N. E.; 4 feet wide. This rock, being much jointed, would facilitate the quarrying of No. 802, had the quarry been started along side of it.

803. Red quartzose syenite from an old quarry of Breen & Young, E. St. Cloud. In general the "red granite" at E. St. Cloud is but a small part of the whole of the rock.

Between the quarry of Breen & Young and that lately opened by Saulpaugh & Co., is a ridge of high land running E. and W. (nearly), which seems to consist of drift materials.

804. Gneiss, from Granite City. (Garrison.)

805. Light colored syenite, Watab, like No. 801, but rather finer in grain.

806. Light, red syenite, Watab.

These last two numbers represent the stone going into the piers of the Bismark R. R. bridge, quarried here also by Saulpaugh & Company. The gray is changed to the red in an interval of about six inches. The north portion of the quarry is red, and the rest is gray. These two numbers seem to duplicate numbers 801 and 803. This range of syenite runs N. and S. at least two miles, and some of the knolls rise 10 to 20 feet. East of this quarry are said to be similar knolls, some of them rising 25 or 30 feet. (V. No. 835.)

At Duluth the rock No. 43, which outcrops near the railroad in the street in front of the Engine House, where it has been quarried lately for use in the basement of the new School-House, and extends N. E. to the falls of Kinichigaquag creek, makes an important member of the rock series visible on the hill-slope at that point. Much of it is bare north-east of the Engine House, within the limits of the city, showing, on weathering, a finely and indistinctly porphyritic structure, but in the main it is a massively bedded, homogeneous, dark rock, with numerous joints, the surface being frequently glaciated.

807. Passing toward the N. W. from the line of strike of No. 43, and thus onto rocks underlying No. 43, at the distance of about one-fourth mile, (but also somewhat to the westward) a rough, blotched rock is found spreading over a considerable area, running in the same general direction as No. 43. This, in general color, is like the last, but it is much finer in grain, and owing to its rough and blotched exterior under the weather, it must have been a conglomerate at first. Were it not for this blotched exterior, which shows a variation in composition, it would be placed at first in the general class of fine basalt, or diabase—like some of the narrow dykes, or like the rock adjacent to a dyke where the heat has baked it and allowed it to cool rapidly, leav-

ing it nearly black and very fine-grained. This conglomerate, while closely connected with the gabbro range, is unlike anything seen in the Cupriferous, and recalls the great conglomerates of Ogishke Muncie lake, although no tendency to slatiness can be seen anywhere. It has occasional light quartzose nodules, somewhat micaceous, but the most of the pebbles are of the color of the rock, except on weathering. In other places, by reason of the weathering, and the fires that have prevailed, a red banding is seen rudely conformable with the supposed bedding, which, on being broken reveals a texture and fracture as well as color and hardness, of the quartzytes of Pigeon Point. This No. (807) illustrates this gray quartzyte, but not the general character of the conglomerate.

808. Underlying this supposed conglomerate is the red syenite, or at least a red quartzless rock, (which is sometimes brown rather than red) which is associated intimately with the gabbro at Duluth. This red rock is to be seen in irregular patches in the gabbro on the hillside; and by carefully following it downward, it is seen to outcrop along the bottom of the creek in such proximity to the conglomerate, with a dip S. E. as to throw it under the conglomerate, unless there be in some way unusual irregularity in the trend and extent of these beds. The red rock is visible under the bridge, and above it in the creek, on the diagonal road going N. toward the Weller Farm, yet within the limits of Duluth. (V. Nos. 42 and 43.)

By following the strike of the red rock westwardly the following facts can be ascertained by anyone:

1. It falls away, except on the higher slopes, or breaks away so as to disappear, for the distance of about half a mile, though a lower strike appears near Superior street. (No. 42.)

2. This interval is followed by a rock showing orthoclase in the gabbro, as well as quartz, as in the rock at the Depot, (No. 5); and in the lower slopes N. E. of the the Rice Point quarry, this character is abundant. This seems to be explicable on the hypothesis that the gabbro flowed over, fused and mingled intimately with the red rock. But it may be of a lower rock horizon, referable to the horizon of the diorytes and their associates in the rocks of the northeast angle of the State. (V. Nos. 671 and 709.)

3. This "red rock" which is in much of its area, quartzless, becomes the red syenite that has been described as mingled with the gabbro, then showing quartz.* This is probably due to the complete

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*See *Proceedings of the American Association for the Advancement of Science*, 1881. Cincinnati Meeting.

fusion of the original sedimentary beds, allowing the otherwise invisible quartz, disseminated cryptomerously, to become aggregated in crystalline grains. At points more distant from the gabbro the only crystals to be seen consist of orthoclase, or of orthoclase and changed hornblende. The number 808 represents the complete crystallization of the elements, and is from Newson's old quarry, at Duluth, while Nos. 7 and 42 are from the same without the crystallization of the quartz.

Owing to the great general resemblance of the conglomerate (above) in its matrix at least, to the rock No. 43, which is seen in front of the Engine House at Duluth, and which overlies the conglomerate there is reason to suppose that they belong together, and that hence they are both of the metamorphic series. If the red rock be of the cupriferous, these must be, since the former runs below the latter. The question then arises, why is this dark-blue or black, and the red rock red. This cannot be due to greater heating and baking, which sometimes has been the cause of black rocks, locally, as described on the Lake Superior shore, in No. 52, and at other points, since under such circumstances the red rock remains red. Hence this seems to be due to difference of original constitution, making it resemble the rocks of the Animikie Group.

809. At Boyle's quarry, on the railroad above Fond du Lac, is a layer of red shale, lying in the heavy sandrock, which is much like the pipestone from Pipestone county. Its greatest thickness is sixteen inches, and it extends at least thirty feet, when it disappears under the drift clay.

At the quarry on Mission Creek, a short distance above Fond du Lac, in the *light-colored parts* of the sandrock are streaks and shades of red or brown, both in those parts having oblique sedimentation, and in those having horizontal. In some cases these dark streaks embrace lenticular pieces of shale, in which case the central parts of the pieces embraced are red or brown, and the outer crust is green. In some pieces the whole is green, or has a very faint central shade of red. On the contrary *in the brown parts* such red or brown lumps of shale are wholly brown, and have no crust of green. This seems to show that the original color of the shale lumps was red or brown, and that by some chemical reaction those in the lighter beds of the formation have become wholly or partly green. Thus, green specks and sometimes large green spots, at least green lumps of shale, are disseminated through the lighter beds, and red lumps through the dark brown beds.

810. Coarsely crystalline "feldspar rock" from two and a half or

three miles below Beaver Bay, showing coarse lamination, and evident striation. (V. No. 814.)

811. "Red granite," massive, from the large red granite island three or four miles below Beaver Bay which is arched on the lakeward side.

812. The "palisade rock," two miles west of the Palisades, S. E. ¼ Sec. 32, T. 56, 7 W., resembles the gray slaty rock at the mouth of Beaver Creek. In some places the Palisade rock here has the appearance of being crumpled, and also of having been originally in some places a conglomerate. Another bluff of light-colored Palisade rock occurs about one and one-half miles west of the Great Palisades. The trap rock which occupies the coast between here and the Great Palisades, runs under this Palisade rock toward the west. It shows a broken and zigzag line of junction with the palisade rock, parts of each penetrating the other, as if each were nearly molten. A little further west it also embraces masses (say ten feet) of the palisade rock, hardened and blackened by quick cooling, showing its sedimentary (or other) closely jointed structure in marked contrast with the massive or heavily bedded, non-conforming layers of the trap. (V. No. 52.)

The west end of the Palisades rises over the greenish and reddish (and then amygdaloidal or red porphyritic) trap, very plainly.

813. (V. 140) The lowest visible part of the rock at the Great Palisades, is confused and crumpled, in the same manner as where this rock is in contact with trap a short distance further west, as noted above. Yet it is very difficult to see the underlying trap, on account of the continuous heavy talus. This number represents *the red* banded felsite from the bottom of the Great Palisades.

There is apparently a continuous belt of this rock underlying the Palisades, outcropping in a narrow belt near the water. It is mingled in various ways with a crumpling of banded rock like that of the bulk of the Palisades (139), and with crumpled bands of light color, some of which stand verticle, or are curved obliquely, some of the latter showing a porous or even a spongy condition due to the solution and removal of some of the minerals. There is also a hard, dark, brittle, fine felsite, though porphyritic like the rest, but occurring in nodules and concentrically banded masses which endure more effectually the weather. They seem a more hard-heated and burnt condition of the Palisade rock. Indeed great confusion exists at the bottom of the Palisades, due perhaps to the forcible injection (as laccolites) of igneous rock below, breaking, crumpling, baking, fusing and metamorphosing rapidly the adjacent beds.[*]

814. There is one place two and one half or three miles east of Beaver Bay, where the "Feldspar rock" is bedded, and dips easterly, in all respects like the usual trap of the shore. It here shows also a confused mixture with the trap, in which in other places it seems to be (and is) embraced as isolated masses, as at Splitrock Point. This bedded condition is very evident in coming from the N. E. as the conspicuous surface slopes in that direction. Narrow dykes of fine-grained, gray doleryte cut the feldspar rock. One dyke is six inches wide, and one is about nine. They are about parallel, 25 feet apart and run E. and W. by compass. The feldspar here is very coarsely crystalline and is represented by No. 810. The alternate beds consists of bands of coarse crystals, succeeded by layers of fine crystals in which are also numerous grains of a more rapidly disintegrating mineral which by becoming disseminated stains the whole of a green color. This disintegrating mineral seems to take the place of the augite seen in the gabbro, therefore, the bedding is an alternation of gray, coarse feldspar, with green, decaying gabbro. No. 814 represents the feldspar stained *with the green-weathering mineral.* The bands of color are from three to six inches, fading into the uncolored, clear, feldspar, above and below. About 20 feet of this bedded feldspar can be seen here. (V. 694.)

815. From the same place as 814, represents the gabbro of more massive character with which the feldspar (810 and 814) is confusedly mixed, but between which there is not seen here any gradual transitions.

From the Palisades, (and Baptism river) to Splitrock, is one great igneous bed, which by appearing and disappearing at the waterline, seems to have been the principal agent in bringing out the geology and causing topography. It lies under the rock of the Palisades, and under the red islands &c., as at Beaver Bay, and over the feldspar knobs, from both of which it has derived fragments. The metamorphosed red shales above, making the red series of crystalline and semi-crystalline rocks of the shore, were apparently brought into that condition by the agency of this igneous rock, but the relation of this igneous rock to the "feldspar rock" is not so easily ascertained. It is certain that the gabbro of Rice's Point is only the usual condition of the feldspar rock, and hence that the gabbro range of which Rice Point is the western termination, lies below many feet of red, metamorphic sedimentary beds that apparently belong to the Cupriferous.

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[*] The immediate proximity of igneous rock, along the coast usually, does not show the most perfectly changed and crystalline condition of the sedimentaries, nor *vice versa*; but when large bodies of either are involved the crystals are best formed The immediate contact is a place of crypto-crystalline rock, both rocks tending to suddenly become alike, and generally almost or quite black.

816. (V. 532 and 551.) Pieces of rock like the "Rice Point granite," embraced with evident feldspar boulders also, in the trap at Beaver Bay, sometimes in large blocks. This seems to be the same rock as the "feldspar rock" or a variation from it. Indeed there are here also masses of coarsely crystalline, green, trap-rock embraced as isolated blocks, in the finer green trap. *The gabbro, and the "feldspar rock" all pre-existed, and bore the same relation to an outflow of later igneous rock.* This point shows a wonderfully confused and brecciated condition prior to the final cementation.

The red rock appears, at Beaver Bay, as pebbles and boulders in the dark trap, and as strings and veins. It is in contact with masses of feldspar, crowded between it and trap. The spots and masses of red rock are distributed, in some cases with pieces of the feldspar rock, throughout the trap, showing the accession of both ingredients when the trap was molten, and even contemporaneously. The "feldspar rock" is derived from previously hardened outflows, and the red rock from the sedimentaries at the *locus* of the outflow. It is true that a long interval of time may have elapsed between the former and the later outflows; or indeed that the "feldspar rock" is of an entirely different formation earlier. Any older formation might furnish loose masses to an outflow of trap.

The interesting facts about Beaver Bay may be summarized thus:

1st. The feldspar masses are blocks detached from their parent rock.

2nd. The trap in which they are embraced is in some places much affected by the infusion of minerals from the sedimentaries, and then shows a reddish color, but it is generally of a greenish or greenish black color.

3rd. Besides this effect on the trap, as seen near the mouth of the creek on the north side, there are included masses of red syenite, and of the ashen-brown, or purple, rock seen near the mouth of the creek. (Nos. 127 and 528.)

4th. These red masses are sometimes in contact with and firmly cemented as by fusion to the feldspar surfaces, and also show a basaltified jointage.

5th. The red syenite here can hardly be called syenite in all cases, but is instead a nearly black (at least a dark purplish) fine-grained rock which in outward characters resembles the Two Harbor rock, but at the same time shows translucent, angular grains like the Palisade rock. This fine-grained condition is seen when it is near the rotting green trap.

6th. The red syenite here was apparently at first a red conglomerate, showing the irregularities of color, hardness and minerals that such a metamorphism produces.

7th. There is within a few inches a passage from the red crystalline characters of the bluff on the south side of the creek to those of the above fine-grained black rock, the rock being one continuous mass.

8th. The red rock is not only a metamorphosed conglomerate, but it was brecciated and then mingled with the trap so that angular pieces appear in the trap when worn off by glaciation.

9th. The red rock was fluidized. It runs about in belts and veins, not only between the trap and the "feldspar rock", and through the trap, but also through the "feldspar rock."

10th. The feldspar rock here passes into gabbro, or at least into a rock like the Rice Point rock, and then it is more generally mixed with the red rock.

11th. On close examination it appears that even as "feldspar rock" it must have been as completely molten as the red rock itself.

12th. This red rock also appears as the palisade rock, rising in a knob near the creek, on the north side, with the lithologic characters and jointage, and translucent grains of that rock.

13th. Under this knob lies a rotting green trap, visible on the north side. A little further east, but within the bay, this green trap, although basaltified, is beautifully mottled and striped with the red rock.

14th. Still further east, on the north shore of the bay, the green trap holds both red masses of the sedimentaries and white masses of the feldspar rock, the latter being, however, more nearly like the Rice Point rock, at least in some large masses—yet much of it is unmixed and clean feldspar.

The above observations, carefully made at Beaver Bay, seem to decide certain points that before were largely hypothetical, or were based on generalizations from a grand review of the geology of the "north shore," and not on special and minute study of the notes made or of the specimens collected.

(1.) The Great Palisades are of a rock, the equivalent, geologically, of the slaty quartzyte (Nos. 127 and 528) at Beaver Bay and below that point; and to the red syenite of the islands below Beaver Bay, and of the west bluff of Beaver Bay; and to the red (often quartzless) rock associated with the gabbro at Duluth. These beds also constitute the red bluffs at Tischer's and New London, as well as the red rocks at Baptism river, and the eastern palisades. In a number of instances the bottom of this great red (metamorphosed) shale has been found to be a conglomerate.

(2.) The feldspar masses are of the same rock (geologically) as the Rice Point gabbro, and both are the result of copious, and perhaps one of the earliest, igneous outflows of the Cupriferous. The more copious the igneous outflow, the coarser the resulting crystalization and the higher the hills formed, as well as the purer the labradorite material. The later outflows derived fragments from the "clinker fields" and from the knobs of feldspar already formed, as they passed along; and when these had been covered by later sedimentation such sedimentary beds were also involved in the later upheavals and fusions. (V. No. 817.)

(3.) It seems as if an igneous outflow,—perhaps the great labradorite—was thrust laterally under the sedimentary beds that went to form the palisades, heaving up those beds, and sometimes fusing them, and mingling with them, as seen near New London and at Beaver Bay, though no such evidence can be cited to show the laccolite formation in later strata. (V. No. 521.)

It must be admitted that it is not at all certain that the labradorite outflow was the earliest, so far as the observations go. It is simply the most conspicuous, and seems to lie nearest the Huronian. Besides this it is still a question whether the green basaltic traps, as at the east side of Beaver Bay, and as that coming out from under the Great Palisades, or the melaphyr-like traps as at Petit and Grand Marais, can be shown to pass into the gabbro without the intervention of any change but difference of proximity to the center of outflow. It is probable that such a gradation can be shown, the rock at Knife River Point being an intermediate step, and that at Encampment Island another.

To illustrate the steps in the change from the feldspar rock to the gabbro, reference may also be made to several large masses lying in the water near the red bluff at the west point of Beaver Bay on the east side of the bluff.

817. Hardened shale, from a brecciated, semi-metamorphosed reddish conglomerate at Two Harbor Bay, lying immediately over the Two Harbor rock, and immediately under heavy green doleryte containing masses of feldspar, (V. No. 525.) This shale is charged with laumontite. Certain blotches are charged with it, particularly in the

form of amygdaloid, the cavities being about one-fourth inch, and less, in diameter. The blotches, or spots, make up sometimes the most of the rock. They are without any order of arrangement. Intercallated amongst them are laminated patches and seams of red material which is fine-grained, and was probably a shale at first, disseminated amongst a coarse conglomerate in the same manner as shale is often seen disseminated throughout a conglomerate, (as at Manitou river); the laminae being parallel with the general dip. Of this conglomerate breccia thirty-five feet are to be seen.

The bottom of the overlying trap is a perfect pudding-stone of pieces of gabbro and feldspar masses. The largest mass of "feldspar rock" at the point east of Two Harbor Bay shows a bedded, at least a banded, structure running nearly perpendicular from top to bottom, similar to that described east of Beaver Bay (No. 814.) It is crossed obliquely by an old dyke, which dyke is faulted, about midway of the bluff, about two feet. A small dyke also runs near the water about horizontal, derived from the trap at the left which, near the water, seems to run below the feldspar. This lower part of the trap holds a piece of the red syenite, near the water level.

As to the "Two Harbor rock," its character and origin are still to be determined by more minute examination of the samples collected, and by further field observations. It has been referred to as a metamorphic rock, in some of these notes, but it has also very much the aspect of a fine-grained, igneous rock. It has the jointage, as well as the general homogeneity of trap, and the red bands crossing it, and the geodic spots seen on its surface, perhaps, have originated from the overlying sedimentary conglomerate. It does not have the appearance of being, exactly, the equivalent of the quartzless red rock at Duluth, but it must occupy very nearly the same stratigraphic position.

818. On the east side of Splitrock Point is a grand pudding-stone of feldspar, gabbro and dark-trap masses cemented still by a dark trap. The most of the so-called feldspar here is really gabbro, very much like the Rice Point rock. This number is from such gabbro-like pieces.

East of this point, but within the same bay, are feldspar masses that show the green banding or bedding. The bands run nearly perpendicular. The lighter-colored bands are much more coarsely crystalline than the darker, which is also true at the point two and a half or three miles east of Beaver Bay, (814.) This is also cut by dykes and generally mingled with the matrix of dark trap in great confusion.

819. From the top of the high hill back of Silver Creek—the high-

est hill near the mouth of the creek, yet on the west side, rising 415 feet above the lake, though at a mile further back it rises perhaps 150 feet higher.

At Flood Bay (next east of Burlington Bay) are frequent slabs of laumontitic sedimentary shale strewn on the beach on the east side. They are at the same time sandy, of a brick-red color, with spots of lighter red, and of green, like the Fond du Lac sandstones. The amygdules consist of calcite and laumontite, but principally the former. Some of these slabs have distinct markings of fucoidal stems, some of them being large and long. As these slabs are evidently from the formation that forms the shore line generally, though where they are found no rock bluff is exposed, they unmistakably prove the sedimentary origin of the red laumontitic amygdaloids so common on the north shore. in another line of evidence.

820. Trap rock, at the railroad cut, Taylor's Falls. This is crystalline, tough, greenish with that internal structure that Prof. Pumpelly assigns to melaphyr, i. e. there are almost imperceptible forms of crystals that permeate the rock, and are so completely filled with the other constituents of the rock that they do not appear distinctly till the rock is weathered. They are generally about one-third or one-fourth inch in diameter, but they do not show any angles, and they do not have the color of pyroxene. When they are distinctly brought out they are seen as spots that completely speck the face of the bluff. They disintegrate more rapidly than the rest of the rock, sometimes assuming a green chloritic character that causes them to make little pits as large as a pea all over the surface, due to the more rapid removal of this green mineral; and sometimes they become gray gradually, giving the appearance of nodules of siderite disseminated through the whole.

821. Shows the green-weathered spots of the rock No. 820. The change to the geen mineral takes place at depths of ten to twenty feet below the surface, in the railroad cut.

822. Shows the gray-weathered spots of the rock 820. This takes place nearer the natural surface of the ground, and at the surface.

In No. 820 are seen sometimes small pebble-like lumps of red jasper, and larger deposits of chalcedony, the latter sometimes being elongated lenticularly, some like gash veins, four or five inches. The chalcedony also appears as pebble-like masses and as filling to scattered cavities somewhat in the manner of amygdaloid. Coating the joints, which are often slickensided, is frequently a green slippery mineral like delessite. Sometimes the chalcedony is more pure quartz, and is mingled sparsely with calcite. These characters are those of an igneous rock, and at the same time this rock differs quite distinctly from the gabbro at Duluth. The jasper and chalcedony recall the disseminated red jasper and quartz pebbles of the conglomerate at Ogishke Muncie lake.

823. Pebbles from the conglomerate forming the lower part of the bluff excavated by the railroad where it crosses the highway south of Taylor's Falls. The bluff here is red-spotted and composed of a curious, coarse, conglomerate. It is dark-colored generally, looking some like the trap formation about Taylor's Falls, but the jointage and the texture are different Some of the surfaces are variegated with coatings of green, radiated malachite, and some are stained green without showing evidently the mineral producing the color. Some also are nearly black and some jasper-red. It is in some spots coarsely vesicular, or like pumice, or like amygdaloid. The amygdules received quartz at first, (as shown by the perfect terminations of crystals) and subsequently calcite and chlorite. Some of it is hæmatitic, and has a streak of red. It was here evidently a shale-conglomerate, but it has the appearance of having been heated and hardened, as well as mixed perhaps with igneous matter. In some places it is fine and crumbles like a dry shale. In some places its conglomeritic composition appears on weathering, the little rounded pebbles (of hardened shale, or of fine argillaceous quartzyte), rolling out entire. The pebbles have a great resemblance to the rock itself, but there are none of quartz. They are somewhat changed by decay.

824. The upper portion of this bluff consists also of a curious conglomerate, the matrix of which is represented by this number. It is a completely crystalline dolomite (apparently, though not yet analyzed) which effervesces in acid when powdered, and which contains fossils of *Lingulæ* &c., and nodules of course calcite crystals. Every grain is a perfect crystal; but in the upper part of the bluff this matrix becomes free from pebbles, and forms beds of dolomite like that seen in numerous other places along the St. Croix valley.

825. The great bulk of this upper portion is made up of boulders contained in No. 824, of which 825 is a sample. They have been said to have come from the "trap" of the region, and perhaps they do, but they are not like the rock 820. They are sub-angular and somewhat rotted. They are porphyries, of a green color, (now) or are homogeneous, resembling some of the rock seen in the Huronian. It is in these boulders that the green coatings of malachite are seen.

This conglomerate, which has its lower portions quite different from the upper, can hardly be separated into two by any distinct line of superposition. The matrix of the upper portion runs below parts that resemble, and indeed are the same as the conglomerate of the lower, while some masses above, embraced in this matrix, seem to be like the underlying conglomerate, and crumble in the same way. The lower characters occupy a thickness, visibly, of six feet, at the highway crossing, though in ascending the hill toward the north, it probably increases, while the upper characters have a thickness of probably 75 feet, rising to the top of the hill further north. Yet this interval is not all visible.

826. At the top of the hill north from the last, in front of Mr. Folsom's house, the rock 820 shows an alternate banding that resembles stratification, and would ordinarily be taken for that. This is seen over the surface of one or two square rods. The rock in general here is smoothed off by glaciation, and this character comes out distinctly on the planed surface. It is less coarsely pitted by the weathering out of the invisible crystals than at the R. R. cut. Indeed the banding that simulates that of sedimentation, consists in finely pitted belts on the surface of the rock alternating with non-pitted bands. The dip, if this structure be due to original sedimentation, is N. E. about 45° in amount, as evinced by a thin layering that slopes in that direction, and which has a tendency to split in beds from one inch to six inches thick coincident with this banding. The rock here also contains chalcedony nodules and is scatteringly porphyritic, resembling thus the pieces found in the upper portion of the conglomerate, No. 825.

The rock that forms the rapids in St. Croix river, half a mile above the town of Taylor's Falls, is essentially the same as that in the R. R. cut, but is less coarsely and conspicuously pitted by the weathering and decay of the invisible crystals supposed to be pyroxene. It is more frequently supplied with quartz, either white or chalcedonic, than the other, and is also striped with red granite, or at least with a red mineral in blotches and vein-like deposits like flesh-red orthoclase, which is also mingled with white quartz. Along the river gorge this rock weathers and crumbles globuliferously, much like the trap-rock seen on the north shore. It has a course and irregular jointage, and sometimes a conchoidal fracture. It is not truly basaltic, even in the Dalles, like the basalt of Grand Marais; yet there are in some places frequent perpendicular joints that divide it into columns. These are cut nearly horrizontally by other joints. Hence coarse columns result from weathering, which are broken horizontally into cuboidal or rhomboidal masses. The banding which looks like sedimentation, near Mr. Folsom's, does not appear generally,—indeed is not known to occur at any other place.

827. From the lower portion of the conglomerate, showing the contained pebbles and the matrix which seems to be of the nature of igneous rock, from the top of the hill east of the R. R. crossing of the highway.

828. Samples of the finer part of this conglomerate where the cement is not igneous, from the same place.

Concerning this conglomerate certain things can be definitely stated, viz:

1. It is extensive, and spreads widely northwestward, even rising to the tops of the hills toward the shaft sunk by Mr. Taylor. It appears in the street, and in the yard of W. H. Cummings, where it is so firm and bold in its outlines, as to appear to be of the real trap formation of the region.

2. It contains waterworn boulders and trap of the region, some of them being porphyries and some not, thus showing the agency of water in its origin.

3. The cementing material is, in the main rock, very much like the boulders, but finer-grained, and sometimes amygdaloidal, thus indicating a possible igneous agency in the origination of thhse parts.

4. It is coarser in its composition near the trap-rock outcrops than at a distance from them; yet the superposition of the conglomerate on the trap cannot actually be seen.

A short distance above Taylor's Falls, at an old quarry in the bluff of the river, the upper part of the conglomerate is so fine as to make a regularly bedded rock about twelve feet thick, and passes for a sandrock. It here contains *Lingulæ*, (*Discina?*) and an occasional small trilobite. Below it becomes coarser and embraces half-rotted pebbles and boulders from the trap. The matrix here also contains grit, some of the pebbles also being of quartz.

On the Wisconsin side the trap is in outcrop in a large ridge about four miles below Franconia, along the road to Osceola. At Franconia the sandrock runs down to the level of the river; near the bottom it is greenish-blue and shaly, and sheds water. This shaly impervious stratum extends down the shore below Franconia, and is visible along near the water-level on the west side of the river, rising sometimes ten feet above it. On Lawrence creek, near the Franconia Mills, is a bluff which overhangs, on account of the crumbling out of the loose sand below. In the crumbling part are numerous laminations of bluish shale which cut the sand into lenticular beds or patches, and the sand itself is cross-bedded. In the crumbling sand are thousands of little *Lingulæ*, and *Discinæ*.

829. A mile and a half below Franconia is an isolated bluff, rising 45 feet above the river, composed of the curious conglomerate seen at Taylor's Falls. It here presents the same mingling of characters that may be referred to igneous and sedimentary origins. The great mass consists of trap boulders, considerably rotted, some of which are as large as a barrel. In the coarser portions of the conglomerate the cementing material is a finer conglomerate of pebbles of the same kind of rock, and in other portions it is a fossiliferous ferruginous, gritty or magnesian sediment, the fossils of which are the same as those seen in the crumbling sand at Franconia, and sometimes apparently an amygdaloid. The change that has taken place in the original structure of the conglomerate by partial decay, and perhaps by heat, makes it often difficult to distinguish between the pebbles and boulders, and the cementing material. The lower portions, if any, are those that seem to have been cemented by the action of heat. A specimen was here obtained of an amygdaloidal part (of the cement ?) which contained fossil shells within less than half an inch of the amygdaloid, both of which, were it not for the contradiction involved, would be pronounced to belong to the cementing material.

In conclusion, judging from the facts here recorded, this conglomerate shows evidences of some kind of metamorphic action in its lower portions, but the phosphatic shells penetrate far down into it and occur even amongst the metamorphic characters. The evidence that this conglomerate was formed under water, even its lower portions, consists in the rounded forms of the contained boulders, while the aqueous conditions of the upper portions are plainly shown by the shells, and by the fact that further up in the formation it graduates to a fine conglomerate and to dolomitic sand rock. (Samples 829 represent some of the finer portions of the conglomerate.)

830. At Sioux Falls, Dakota, may be seen a light-colored schist, of a talcose character, and pea-green color fading to nearly white, similar to that seen at Baraboo in connection with the quartzyte bluffs. It here lies in the rock and becomes a white catlimite. Below the present level of the water of the dam, but formerly exposed above the water, is a layer of white, or pinkish-white catlinite, four feet thick, embraced in the rock that produces the falls. •

831. Samples of spotted-red quartzyte, like that at Sault Ste Marie, Michigan, and like some parts of the Fond du Lac sandstone, showing a probable identity of the geological horizons at those places. It is

possible that these light-colored spots are caused by the absorption of the iron through chemical change, and that by careful examination the cementing material would be found to be feldspathic.

The red quartzyte formation at Sioux Falls dips 6 to 8 degrees to the south. The beds are purple within, especially the thick ones, but toward the outside, and along the joints, they are changed in color to a rose red, or a pinkish red. None of the brick-red, heavily iron-stained color can be seen. The change that takes place by weathering not only changes the color but also the hardness, so that the rock goes into a loose sandrock again and crumbles in the hand. This takes place to so large an extent that in suitable places it is gathered and used for mortar. There are also some beds that are wholly now, (so far as can be seen) in this friable condition. The sand that results is a pure selica, nearly white, and translucent, though it is apt to show at first a slight pinkish tint rising from the remains of the cement among the grains. There is visible here, of the bedding, fifty feet, (estimated) and the river goes over the beds from south to north, producing a fine water power. In one place there is a gorge fifteen feet high and from seventy-five to eighty feet wide.

832. Spotted (amygdaloidal ?) samples of the brick-red quartzyte from Redstone, near New Ulm.

833. Red shale, the lowest rock seen in the R. R. cut at Redstone. This is four or five feet thick, the upper portions being rather slaty and tough. Some of the higher layers are sandy from disintegration as at Sioux Falls, and some are hard and quarzitic, and all are of a darker red color. Some beds are spotted, perhaps from an incipient amygdaloidal structure. Mr. Nicholas Thinnes, who first opened the quarry at Redstone in 1857, avers that some of the rock of the formation here is "granit," the same as some of that at Little Rock, a fact which, if verified, will unite the formation with that, and will show its analogy to those tilted red semi-crystalline beds in the northern part of the state (V. Nos. 783 to 785.) But this crystalline structure has not been seen at Redstone by any member of the geological survey.

834. Slab of red quartzyte from Sioux Falls, showing the finely pitted exterior of the individual sand grains on the removal of the white schist, No. 830.

835. Gray, coarse-grained granite, in color much like the gabbro at Duluth, from the E. St. Cloud quarries. This was formerly used in connection with the rocks 803 and the finer grained gray granite like that at Sauk Rapids indiscriminately for construction, but owing to its large content of quartz, it has been abandoned for those varieties

more easily wrought. All these sorts are to be seen in the trimmings of the Custom House at St. Paul. But that now generally used is to be seen in the trimmings of the New Union Depot, at the same place.

836. The pink quartzyte known as the "jasper rock" locally, from Sioux Falls, Dakota. This is a pinkish granular quartzyte, but with a cement that, on disintegration, allows the rock to become a white sand.

III.

THE POTSDAM SANDSTONE.

It is well known that geologists are not agreed on the question: "What is the western representative of the Potsdam sandstone of New York State?" The correct determination of this interesting problem has an important bearing on the interpretation of the stratigraphy of Minnesota geology, inasmuch as all the different horizons involved in the investigation are widely represented in the State. Those horizons are as follows in descending order:

1. The light-colored sandstones seen in the Mississippi river bluffs, and the bluffs of the St. Croix, from Taylor's Falls to Winona, containing species of *Lingulæ* and trilobites, generally distinguished by this survey as the *St. Croix Sandstone.*

2. The red and light-colored horizontal sandstones that bound the south shore of Lake Superior throughout most of Wisconsin, and much of Michigan, extending from Sault St. Mary to Fond du Lac, holding fucoids and *Scolithus.*

3 The red sandstones and shales, with the associated conglomerates that are involved with the trap-rocks of Lake Superior, furnishing metallic copper, lately known as the *Keweenian formation.*

At different places Nos. 1 and 2 have been seen unconformably overlying portions of No. 3, and in others No. 3 has been seen passing into No. 2, or at least into a sandrock that was taken for No. 2, while No. 2 itself seems to be the equivalent of beds that in other places represent No. 1.

While it is perhaps impossible at this time to state which of these three, or which two of these three, have the greater amount of evidence in their favor, it will conduce to the progress of the investigation to ascertain and collate some of the facts that bear on the geology of this disputed terrane, and to review briefly the progress of opinion and investigation in the Lake Superior region. In the light of late explorations in the West, and of late investigations in the East, perhaps it will be possible to reach more nearly a correct conclusion than at any other time. In the first place it will be well to summarize the opinions held by different geologists who have expressed any opinions respecting the Potsdam sandstone of the West. There was a school of geologists between 1840 and 1858 who regarded the Lake Superior sandstones as not of the Lower Silurian, and some are found even to this day. They were not united among themselves, but were divided between Jurasso-Triassic, Devonian, Upper Silurian and Carboniferous. After the investigations of Dr. D. D. Owen and the report of Foster & Whitney, unprejudiced geologists very generally accepted the conclusion that they are of the Lower Silurian, and lately the facts recorded by Dr. C. Rominger seem to place their Lower Silurian age beyond doubt. Thus the question is brought within narrower limits and the doubt that still exists pertains only to their exact horizon in the Lower Silurian, or in other words, where in the West the Potsdam sandstone is found. It was until lately that the same uncertainty existed within the limits of an individual State, respecting the equivalency of beds in the Carboniferous age as they extended from one side to the other,* and the problem was finally settled by tracing a well-known sandrock formation from north to south, and bringing all the other strata into order above and below it. Perhaps some such process may be applied to this question.

But before entering upon that a glance may be taken at the various opinions that have been held. These opinions may be grouped under sixteen heads, but the present state of knowledge compels us to ignore many of these opinions, which reduces the groups to be considered to ten. The sixteen groups are as follows, with the names of those who have advocated them:

Summary of Opinions.

1. Those who regard No. 1 as the Potsdam sandstone—Logan, White.
2. Those who regard No. 2 as the Potsdam sandstone—Logan, Brooks.
3. Those who regard No. 3 as the Potsdam sandstone—Rogers (W. B.), Dana, Winchell (N. H.).
4. Those who regard all of them as the Potsdam sandstone—Hall, Foster, Whitney, Winchell (A), Dana, Kloos, Owen.
5. Those who regard Nos. 1 and 2 as the Potsdam sandstone—Whittlesey Chamberlin, Irving
6. Those who regard Nos. 2 and 3 as the Potsdam sandstone—Hubbard, Rivot, Rogers (W. B.), Whittlesey, Marvine, Rominger, Wadsworth.
7. Those who regard the Lake Superior sandstones as Calciferous and Potsdam —Dana.
8. Those who regard the sandstones of Lake Superior as Calciferous—Dana.
9. Those who regard the Lake Superior sandstones as Potsdam, Calciferous and Chazy—Logan.

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*Ohio.

10. Those who regard the Lake Superior sandstones as Quebec—Logan, Hunt, Pumpelly, Dana, Hall.

11. Those who regard the Lake Superior sandstones as Jurasso-Triassic—Houghton, Ruggles, Jackson, Shepard, Rogers (H. D.), Owen, Marcou, Dana, Bell (or Permian).

12. Those who regard the Lake Superior sandstone as Upper Silurian—Jackson.

13. Those who regard the Lake Superior sandstone as Devonian—Locke, Bigsby and Bayfield.

14. Those who regard the Lake Superior sandstones as Permian MacFarlane.

15. Those who regard the trap and sandstones of No. 3 as Cambrian—Logan, Bigsby (Whittlesey older than No. 1).

16. Those who regard the trap and sandstones of No. 3 as Huronian—Selwyn.

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Opinion No. 2. Geological survey of Canada. Rep. for 1846-7; American Journal of Science, 1852, XIV, 226; Geology of Wisconsin, 1873, III, 433.

Opinion No. 3. Proc. Bos. Soc. Nat. His., 1860, VII, 394; Rep. Minn. Survey, 1872, 68; *Ibid* 1876, 29; Dana's Manual of Geology, edition 1862, p. 173 74.

Opinion No. 4. Palæontology of New York III, 79; Report on the Geology of the Lake Superior Land District, Part II, p. 137; Proc. Am. Assc. Adv. Sci., 1851, V., 22-38; Am. Jour. Sci., 1864, XXXVII, 226; Sixteenth Regents' Report N. Y. State Cabinet, p. 119; Dana's Man. Geol., 1862; Geologische Notizen ans Minnesota, Zeit. d. deut. geol Gesell, 1871; Owen's Report on the Geology of Wisconsin, Iowa and Minnesota, 1852; Proc. Am. Assc Adv. Sci., 1855, X., 204; Leonhards' Jahrbuch, 1877, Erstes Heft, pp. 31, 113, and 225.

Opinion No. 5. Geology of Wisconsin, 1873, III; Geol. Wis., Iowa and Minn , 461.

Opinion No. 6. The Mineral Regions of Lake Superior, by J. Houghton, Jr., and T W. Bristol; Senate Documents, 1849-50, 31st Cong., 1st Sess , III, p. 802, 842; *Ibid*, 1845-6, 29th Congress, 1st Sess., VII No. 357, p. 2-29; Annales des Mines (5) 1855, VII, 173; 1856, X, 364; Proc. Bos. Soc. Nat. Hist., 1860, VII, 394-399; Proc. Am. Assc. Adv. Sci., XXIV, 1875, 60; Mineral Regions of Minnesota, 1866; Geology of Michigan I, Part II, 1873; *Ibid* Part III; Proc. Am. Assc. Adv. Sci. XXIX, 429.

Opinion No. 7. Dana's Man. Geol. 1862, pp. 172-74.

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Opinion No 10. Am. Jour. Sci. (2), 1861, XXXI, pp. 216, 392; *Ibid*, 1862, XXXIII, 321; Can. Nat. and Geol., 1861. VI, p. 81; Geol. of Canada, 1863, pp. 605, 698; Geol. Map of Canada, 1866; Dana's Manual of Geology, Ed. of 1874, p. 182; Am. Jour. of Sci. (3), II, p. 351.

Opinion No. 11. Am. Jour. of Sci. (1), XLIX, 62-72; *Ibid*, p. 81-93; Assc. Am. Geol. and Nat., 6th meeting, 1845, p. 53; Bul. Soc. Geol. France, 1850-51 (2), VIII, 101; Geology of North America, by Jules Marcou, Zurich, 1858, p. 64; Rep. on

Chip. Land Dist., 1848, pp 57-58; Sen. Docs., 1847-48, VII, No. 57, p 134; Am. Jour Sci., 1843 (1), XLV, 160; Proc. Bos. Nat. Hist., 1864, II, 124; Dana's Manual of Mineralogy, 2nd Ed., 1857, p. 305; Rep Progress Geol. Sur. of Can., 1866-69, p. 321.

Opinion No. 12. Proc. Bos. Soc. Nat. Hist , III, p. 335.

Opinion No. 13. Quar. Jour. Sci. Lond., 1824, XVII, pp. 1-34, 228-269; Am Jour. Sci., 1824 (1), VIII, 60-88; Trans. Lit. and Hist., Soc. of Quebec, 1829, I, p. 1; Locke's Beport, 1847.

Opinion No. 14. Can. Nat. and Geol. (2), III, p. 256.

Opinion No. 15. Trans. Brit. Assoc. Adv. Sci., 1851; Edin. New. Phil. Jour. LIII, 55; Geol. Wis., Iowa and Minn., 461.

Opinion No. 16. Can. Nat. and Geol. (2), IX, 17; Rep. Prog. Can. Geol. Sur., 1877-78.

If we discard those whose opinions make the Lake Superior sandstones post-Silurian, and also those who regard them as pre-Silurian, of the remaining, by far the greatest weight of authority falls on proposition No. 6, which assigns Nos. 2 and 3 to the Potsdam. Proposition No. 4, which assigns them all to the Potsdam, follows next in weight of authority.

In this enquiry it will be necessary in the first place to ascertain exactly what the Potsdam sandstone is stratigraphically, lithologically and palaeontologically. This will involve an enquiry into the nature of the formations that lie below and above it in New York and New England Secondly, it will be necessary to ascertain what formations in the West approach most nearly to an equivalency with the same horizons.

1. What is the Potsdam of New York and New England? As to the lithological characters of the Potsdam in New York the following is from the annual report of Dr. E. Emmons, Jan. 1838: "This rock is a true sandstone, of a red, yellowish-red, gray and grayish-white colors. It is made up of grains of sand, and held together without a cement. Inter-mixed with the siliceous grains are firner particles of yellowish feldspar which do not essentially change the character of the sandstone, but show the probable source from which the materials forming it were originally derived, viz.: some of the varieties of granite. Unlike, however, most of the sandstones, it is destitute of scales of mica. The coloring matter of the rock is evidently oxide of iron, but unequally diffused through it, giving it intensity or deepness of color according to its quantity. In some places it is almost wanting, which makes it, when pulverized, a good material for glass. The grains and particles in its composition are generally angular, but where it takes the character of a conglomerate, as it does in the inferior layers, they are frequently rounded. The thicker strata exhibit an

obscurely striped appearance, owing to the prevalence of certain colors in the different layers." In his final report on the agriculture of New York Mr. Emmons says of this rock: "This sandstone is more uniform in its characters than most of the individual rocks in the series. At Potsdam it is yellowish-brown; at Moira and its neighborhood, and also in Mooers, it is nearly white and sandy; at Chazy it is of a deep red at the bottom, and gray towards the top, while at Whitehall, Corinth, Hammond and near Glen's Falls it is gray, and more or less crystalline. In many places it is a coarse conglomerate, as at Mooers in Franklin county, and at DeKalb in St. Lawrence county. It is of course a siliceous rock, yet it does not exclude other substances or elements; for, a true sandstone, far from being composed of pure siliceous sand, admits into its composition mica and feldspar, oxide of iron, and probably even a greater variety of the primitive minerals, as hornblende, pyroxene, &c., in a state of fine division."

Mr. Mather, in his final report on the first district, speaks of the Potsdam in the following terms: "The Potsdam sandstone is a hard siliceous sandstone, white, red, gray, yellowish, and frequently striped. It is well developed at Whitehall." * * * * "Some of the strata of this rock are covered with the most beautifully characterized ripple-marks, as perfect as if just formed on the sand of a sea beach, while the rock is of the most indurated kind of sandstone." * * * * "Fucoidal impressions are also seen in some of the strata of this rock. * * * * "It is a hard stone to dress, and is one of the most durable kinds of rock." * * * * "In some places, in its lower part in particular, it is a metamorphic rock, having more or less the aspect of gneiss, except that mica is absent. Half a mile west of Putnam's Ferry, where it overlies granitic rocks, it is in an intermediate state, having the general aspect of a primary rock, but still shows its rounded gravel and sand." Mr. Mather mentions other places where it has been changed by metamorphic agency. In the northwest part of Clinton county, and in St. Lawrence and Franklin counties the lower portion of the Potsdam is a conglomerate, which in some places reaches the thickness of 300 feet.

Where the formation appears in Vermont it runs in mono-clinal, long or short, sharp ridges, and is thus spoken of by Dr. Edward Hitchcock in the first volume of the final report on the geology of Vermont, 1861: "Its lithological characters vary very little. In consequence of a metamorphic action we reckon three varieties:

1. Pure siliceous sandstone.
2. Hornblende schist.

3. Gneiss.

"The first of the trio is what is universally known as Potsdam sandstone, a hard, compact, thick-bedded sandstone, and perfectly homogeneous in structure, unless metamorphosed. Its color is generally white in the eastern part of North America; it being red upon the shores of Lake Superior." * * * "The second variety cannot be distinguished from the hornblende schist which occurs among the azoic rocks of Vermont and New York." * * * * "The third variety very closely resembles the Laurentian gneiss. It seems to pass into it by insensible gradations. All the constituents of this rock are very small, and occasionally the feldspar or the mica may be wanting. These hornblende schists and gneiss rocks, indicate a change has passed over a part of the Potsdam sandstone, analogous to the metamorphism that has so obscured the rocks of eastern Vermont; for such rocks as gneiss, &c., are not found, except by the crystallization of the constituent minerals after the accumulation of the sediments." Dr. Hitchcock also mentions veins of "granite" in the Potsdam at West Haven, whose feldspar is labradorite. At the time of Dr. Hitchcock's report the "red sandrock" of Vermont was not admitted within the Potsdam, nor was the "quartz rock" running along the western base of the Green mountains, but an earnest discussion was then going on between Professors Hall, Dana, Emmons, Marcou, Billings, Logan and others, concerning the geological position, and the actuality of any such system as had been designated Taconic, claimed by Prof. Emmons to lie directly below the Potsdam: *Vide* Am. Jour. Sci , 1861, No. 91; and Can. Nat. and Geol., 1861, Vol. VI, p. 106.

2. As to the palæontology of the New York typical potsdam. Prof. Hall reports in the first volume of the palæontology of New York, besides *Scolithus linearis*, two spieces of *Linguleæ*, viz: *prima* and *antiqua*. To this list have been added since a species of *Hyolithes* from Keeseville. Am. Jour, Sci., July 1871, p. 32; 1873, p. 211, vol. 5; imperfect specimens of supposed *Pleurotomaria* and *Conocephalites minutus*, from Keeseville. The last may belong to the beds below the Potsdam, as described by Brooks, Am. Jour. (3) IV, 22. In the state of Vermont have been discovered several species of trilobites, as well as other species of trilobites and brachiopods at Troy, N. Y., (Am. Jour. Sci., 1873, vol. VI, p. 134; vol. XI, 1876, p. 369.) But as their position in the formation is still in doubt, while some of them, especially those from Georgia, Vt. and Troy, N. Y., have been shown to belong below the Potsdam in statigraphical sequence, none of them should be embraced in the fauna of the typical Potsdam. At the same time the term Potsdam

has been extended loosely over these strata, especially by those who are adverse to the Taconic group of Emmons. (Am. Jour. Sci., 1880, vol. XIX, p. 152; Ibid, 1880, vol. XIX, p. 153 and p. 225.)

3. One of the results of the Taconic discussion was the establishment of the essential correctness of Prof. Emmons' claim, that beneath the Potsdam sandstone was still a fossiliferous horizon, which when metamorphosed constituted the roofing slates and talcose rocks of eastern New York and northern Vermont, though he perhaps extended it without warrant over areas where he had not sufficient evidence of its actual continuance. This error however, no more invalidated his claim to the correct establishment of his system than a similar supposed error in the extension of the Hudson River rocks where they were not proven to exist in Vermont, Massachusetts and eastern New York, destroyed that system. Geol. Wis., 1862, p. 443; Proc. Am. Ass. Adv. Sci., 1877, XXVI, p. 259. The palæontological investigations of Mr. Billings, seconded by Mr. Barrande, and of Mr. Ford, have amply demonstrated that beneath the horizon of the Potsdam sandstone is a series of rocks containing a primordial fauna, consisting of argillaceous slates, black slate, and thin-bedded sandstone with some limestone. This formation, sometimes known as the Georgia Group, is probably the equivalent of the Acadian of Dawson. According to Brooks, these strata, as they occur at Keene Station in St. Lawrence Co., N. Y., consist of magnesian schists, crystalline limestone and sandrock like the Potsdam but containing beds and veins of granite, the whole amounting to a mininum thickness of 700 feet, (Am. Jour. Sci. (3) IV. 22.)

4. The fossil species, described by Mr. Ford from these lower Potsdam, or Taconic rocks near Troy, N. Y., are sixteen, and a portion are identical with fossils from the Acadian. On the strength of palæontological differences Mr. Ford states that he considers these beds to occupy a lower geological horizon than the typical Potsdam of New York, and to be of nearly, if not exactly, the same age as the Georgia slates of Vermont, and the limestones on the north shore of the straits of Belle Isle. The fauna he regards "wholly distinct specifically from that of the upper Potsdam of Wisconsin and the true Potsdam of New York," (Compare Am. Jour. Sci., (3) XIX, 152.) After Mr. Barrande had indicated the primordial character of the trilobites of the Georgia slates, and Messrs. Billings and Logan had accepted his suggestion. Prof. Hall also recognized the strength of palæontological authority and admitted that the Potsdam of the New York survey was not the true primordial base. This true primordial zone is

characterized in America by such trilobites as *Paradoxides*, *Conocephalus*, *Arionellus*, *Conocoryphe*, and *Olenellus*.

5. If we next inquire what formation lies above the New York typical Potsdam, we shall find the Calciferous Sandrock described by Prof. Emmons as follows:—(Final Rep.) "Considered as a totality this is one of the most heterogeneous rocks in the New York system. That part which furnished the name is well designated under the descriptive term, and is easily recognized." This is a gray mass with sparkling grains of lime, but an impure limestone, being mechanically mixed with fine grains of sand and slight interlaminations of argillaceous matter. Another variety is a fine-grained and blue limestone, and another is red or chocolate colored, consisting of sandstone slightly interlaminated with shale.

Mr. Mather thus designates this formation: "The rocks are calcareo-siliceous, and sometimes one and sometimes the other predominates, and gives character to the rock. The water-lined laminæ of deposition are very conspicuous in some of the strata of the Calciferous sandstone. * * * * There are numerous small patches where these rocks have been upheaved and exposed, that are not continuous for any considerable distance * * * *, having been fractured across and heaved out of place along faults transverse to the lines along which the *principal* disturbances have taken place." This formation in N. Y. lies under the Chazy limestone.

6. The fossils of the Calciferous in New York, as reported by Prof. Hall in the first vol. of the palæontology of New York consist of the following:

Two species of *Palæophychus*.

One species of *Buthotrephis*, *Lingula acuminata*, *Euomphalus uniangulatus*.

Two spiecies of *Maclurea*.

Two species of *Ophileta*.

Two species of *Turbo*.

Pleurotomaria turgida.

Two species of *Orthoceras*.

To these Mr. Billings has added very many species from the adjoining portions of Canada, including gasteropods, brachiopods, and cephalopods. Of trilobites are fourteen species referred to the Calciferous, viz.: two of *Amphion*, six of *Bathyurus*, one of *Asaphus*, and others of *Agraulos* and *Conocoryphe*. The rocks of the Quebec group, which are placed by Prof. Dana above the Calciferous, seem to embrace both stratigraphically and palæontologically, the whole range of beds from the base of the *second fauna* to the top of the Chazy; and over two hundred and twenty species have been described from this group. But their relation to the Potsdam is still a matter of doubt. While stratigraphically they are placed above the Potsdam by Billings, Logan, Dana and Hall, they still have many of the species that have been reported from the western so-called Potsdam, viz.:

Four species of *Leptæna.*
Fourteen species of *Orthis.*
Three species of *Lingula.*
Two species of *Obolella.*
Two species of *Stricklandia.*
Two species of *Ecculiomphalus.*
Seven species of *Pleurotomaria.*
Two species of *Murchisonia.*
Three species of *Ophileta.*
Two species of *Holopea.*
Seven species of *Metoptoma.*
One species each of *Helicotoma* and *Maclurea.*
Seven species of *Orthoceras.*
Six species of *Cyrtoceras.*
One specie of *Nautilus.*

TRILOBITES.

Three species of *Agnostus.*
Two of *Arionellus.*
Two of *Asaphus.*
Eight of *Bathyurus.*
Two of *Cheirurus.*
Eight of *Dickelocephalus.*
Three of *Menocephalus.*

And one each of *Amphion, Amphyx, Conocephalites, Holometopus, Illænus, Nileus, Shumardia* and *Leperditia.* Mr. C. D. Walcott has also lately found the following new species in the Calciferous in Saratoga county, New York, viz.: *Platyceras minutissimum, Metoptoma cornutaforme, Conocephalites calciferus, Conocephalites Hartii, Ptychaspis speciosus* and *Bathyurus armatus,* of Billings. He remarks that "the occurance of a species of the genus *Ptychaspis,* associated with *conocephalites calciferus* and *C. Hartii*—species related to *Conocephalites Wisconsensis* and *C. Iowensis* of the Potsdam fauna of Iowa and Wisconsin—relates the fauna of the Calciferous formation of New York with that of the Potsdam sandstone of Iowa and Wisconsin."

We have now stated the essential features and the stratigraphical position of the typical Potsdam sandstone of New York, as given by the best authorities, and it will be best to recapitulate briefly.

1. It is a red or gray loose sandstone, often tilted or faulted, also metamorphozed, and then having the name of quartzyte.

2. It contains but very few fossils, three undoubted species being the most that can be referred to it, but not distinctly primordial.

3. It is underlain by a series of black slates and sandstones, with some limestones, which have exhibited in Vermont, at Troy, N. Y., and at the Straits of Belle Isle, a decidedly primordial type of life.

4. It is overlain by a formation which exhibits but few fossils in New York, but which in Canada holds a diversified fauna, placed by Barrande, Billings and Logan near the bottom of the second fauna, containing, among other species, numerous genera of trilobites.

If in the same manner the formations of the Lower Silurian in the west that may possibly be the equivalents of these three of New York, be reviewed, some light may be thrown on the question of the parallelism of the New York Potsdam in its western extension.

1. The lowest formation known in the northwest, which may be parallelized with the foregoing, is that which Sir William Logan denominated at first the "Lower Volcanic Group," and subsequently the "Kaministiquia Slates," and which Dr. T. S. Hunt has named the "Animikie Group." It is the same as that which contains the silver mines of the northwest shore of Lake Superior. It is briefly described in the Seventh Annual Report of the Minnesota Geological Survey. It consists emphatically of slates, but it contains many beds of gray quartzyte, and some of dolomite. It passes downward to the Gunflint beds of northern Minnesota, and *seems* to lie unconformably on the formation that has been accepted as the Huronian. It is cut by igneous dykes, and is interbedded with what appears to be a diabase rock. No fossils have been found in it. The slatiness of this formation is due to the horizontal sedimentary lamination, so far as seen, and not to a superinduced cleavage. The extent of this formation northwest of Lake Superior is unknown toward the north but it extends east and west at least one hundred and twenty-five miles. It is believed to occur in Michigan and Wisconsin, since mention has been made in geological reports of those States of a "black slate" in the Potsdam formation. Proc. Am. Assc. Adv. Sci., IX, 208; the Mineral Regions of Minnesota—Whittlesey, 1866, p. 4. Stratigraphically this seems to occupy the place of the Taconic rocks at Troy, N. Y., and of the Georgia Group of Vermont. Lithologically it has a close resemblance, and

palæontologically the evidence of parallelism is simply negative, *i. e.*, as no fossils have been found in it, no comparison can be made on that basis.

2. The foregoing formation is overlain by the Cupriferous rocks of Lake Superior (No. 3 above), whether conformably or not is not known, but so far as the evidence goes it appears in Minnesota to graduate into the overlying formation conformably, and unconformability is not reported by the Canadian geologists at Thunder Bay. This formation is pretty well known, so far as its associated igneous rocks are concerned, and the equivalency of its sedimentary portions with the Potsdam has been the subject of much discussion. A summary of opinions has already been presented. It is only necessary here to mention its outward characters, and to compare them with the three formations of New York, to each of which it has been referred by different geologists.

It is a red formation of shale, sandstone and conglomerate, metamorphozed by igneous upheaval and fracture, locally changed to gneiss, syenite and hard, red quartzytes, and is interbedded with doleryte and mixed with gabbro. In it have been seen only the non-characteristic *Fucoides*, but its association with repeated igneous outflow is sufficient reason for the non-existence of animal life in the era of its deposition. Still if the sandstones of Tequamenon Bay in Michigan be considered its equivalent it may be said that two species of *Lingula* have been taken from this formation. Dr. Rominger, however, who has carefully examined the Upper Peninsula of Michigan, unhesitatingly places these in conspicuous formation, as he also does the bed of breccia containing the *Dikelocephalus* on the Menominee river near Grand Rapids —Geol. of Mich., vol, I, Part III, pp. 73 and 80. The beds at Marquette containing *Pleurotomaria* are placed by Mr. Billings in the Calciferous.

The lithological characters of this formation, therefore, ally it unmistakably with the typical sandstone of Potsdam, while stratigraphically it lies above a similar series of black slates and sandstones as in eastern New York and Vermont. If it be borne in mind that the typical Potsdam has a very meager fauna, consisting of but three species not characteristic of that horizon, it has a very close resemblance in its fauna also; and it is not unreasonable to suppose that when this horizon in the northwest has been as minutely examined as the typical Potsdam has in New York, an equal number of *Lingulae* may be found in it.

3. It is the overlying formation, however (Nos. 2 and 1), which af-

fords the best material for comparison with eastern rock horizons, as it is marked by a fauna very diversified and characteristic, and is easily traced, by a series of explorations by competent geologists, from the Mississippi river to Canada, with no very important interruptions, making a very close connection with an allied, if not an identical, formation in eastern Canada. Here are placed in one formation the foregoing Nos. 2 and 1, not because there is certainly any line of separation between Nos. 2 and 3, nor the absence of one between Nos. 2 and 1, but because on comparing the described characters of 1 and 2, they seem to occupy nearly the same geological horizon, and for the present purpose can best be considered as one. They consist of light-colored siliceous sandstones with some dolomitic layers near the top. They are horizontally stratified, and are seen in different places to lie unconformably upon the tilted layers and trap rocks belonging to No. 3—or the copper-bearing rocks. This is the case at Taylor's Falls, Minn., and at Kewenaw Point in Michigan. While it would perhaps be an arbitrary line which should set them off as a distinct formation from the copper-bearing series, they still need to be distinguished from that series on account of great lithological differences and stratigraphical position, as well as on account of the rich fossil fauna they have afforded. The fossils that have been described from the bluffs of the Mississippi and St. Croix rivers by Dr. Owen (Geol. Wis, Iowa and Minn.) and by Prof. James Hall (16th Regents' Report) are all from this formation, and it requires but a glance to see their resemblance to that fauna which has been found in Canada and described as in the Quebec group. These fossils, as enumerated by Prof. Hall in the 16th N. Y. Regents' Report, are as follows:

Five species of *Lingula.*
One species of *Lingulepis.*
One species of *Discina.*
One species of *Obella.*
One species of *Orthis.*
One species of *Platyceras.*
One species of *Euomphalus.*
One species of *Theca.*
One species of *Serpulites.*
One species of *Sendrograptus*
And of *trilobites* the following:
Six species of *Dikelocephalus.*
Eighteen species of *Conocephalites.*
One species of *Arionellus* (?).

Three species of *Ptychaspis.*
One species of *Chariocephalus.*
One species of *Illaenurus.*
One species of *Triarthrus.*
Three species of *Agnostus.*
One species of *Aglaspis.*
One species of *Pemphigaspis.*
One species of *Amphion.*

With such an array of identical genera, not to say species, it is safe to assume identity of geological era for these strata with those containing such a fauna in Canada—Pal. Fossil, p. 198; Am. Jour. Sci. (2,) XXXI, 222. It is to be admitted that these fossils have not yet been discovered in the arenaceous strata extending through northern Michigan, although the same friable formation, occupying the same stratigraphical horizon, extends from Wisconsin to the east end of Lake Superior, and has been traced by Prof. Chamberlain and Dr. Rominger. They are there kept constantly distinct by Dr. Rominger, from the underlying red sandstones, which he says are generally firm, and become disturbed by igneous upheavals in their lower portion. The sandrock, cut by the canal at Sault St. Marie, he says is the lower red sandrock.*

To what eastern formation this fossiliferous belt may finally be assigned, whether to the Quebec or to the Potsdam, it certainly shows the palæontology of the Quebec; but at the same time Prof. Hall has cautiously assigned it to the Potsdam of New York. He has also assigned the sandstones of No. 3 and No. 2 to the same, and his authority, therefore, to a great extent, nullifies itself.

It seems, therefore, that so far as present available information will warrant us in coming to a conclusion, we can accept the following as probable if not certain:

1. The Taconic Group was correctly establis by Prof. Emmons, though its limits, stratigraphically and geographically, were at first wrongly defined by him.†

2. The Georgia Group of Vermont, and the Animikie Group of Thunder Bay, and the Acadian of New Brunswick, are the equivalent of the Taconic of Emmons.

3. The Taconic has the true primordial fauna of Barrande.

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*See Hunt on the identity of the Calciferous and Western Potsdam, Can. Nat. and Geol. (3) VI, 87; Azoic, Rocks of Penn. 1878. Report E., pp. 107 and 108.

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† Compare Dana's investigation of the so-called Hudson River Group, in Mass., Vermont and New York. Am. Jour. Science, various papers in 1872—'80.

4. The Potsdam, which lies conformably above it in the east, is represented by the rocks of the copper-bearing series in the west.

5. No fossils, representing the true primordial fauna, have yet been discovered in the west, nor have any been found in the western representative of the Potsdam.

6. The "second fauna" of Barrande is found in the Quebec group of Canada, and in the St. Croix sandstone of the west, lying in each case above the Potsdam sandstone.

IV.

TYPICAL THIN SECTIONS OF THE ROCKS OF THE CUPRIFEROUS SERIES IN MINNESOTA.*

By N. H. Winchell.

In northern Minnesota the cupriferous rocks, when crystalline, consist of two distinct types. One serie is *igneous*, and one is *metamorphic*.

The former may be broadly comprehended under the term *doleryte*, as defined by Prof. J. D. Dana. The most frequent representative of this group is the rock gabbro, consisting essentially of labradorite, augite and titaniferous magnetite. It produces the dark-colored and heavy rocks of the shore, is seen as layers alternating with the non-crystalline and sub-crystalline layers of the other group, and as massive, mountain-like elevations. It is often basaltic. On weathering, it decomposes and becomes greenish when near the water, but brownish when at higher elevations. It is often amygdaloidal, furnishing various zeolitic and other minerals. It has a very intimate, and yet very distinguishable association with the rocks of the other group; but in general it is the most conspicuous rock of the cupriferous series, causing the most of the salient features of the coast, and the prominent elevations of northeastern Minnesota. When in contact with the sedimentary beds, the rocks of the igneous group are but slightly affected by the interpenetration of the minerals of the other group. Yet in some instances isolated pieces of the sedimentaries have been embraced in the igneous rock, and so completely fused with them, that the minerals, that otherwise characterize each, are closely mingled over small intervals.

The rocks of the second or metamorphic group, on the other hand, are, in nearly all cases, of a reddish color. They show all stages of metamorphic change—from red sedimentary shale and sandstone to red felsite and syenite The minerals that are invariably found in this rock, when completely crystalline, are quartz, orthoclase, and hornblende. The beds from which these crystalline red rocks were derived are seen interstratified with regularity with the rocks of the other group. But when these red rocks are crystalline or subcrystalline, the alternation is less evident. The alternation in this changed condition is less frequently seen in horizontal layers, but rather appears in sudden verticle replacement. In some places they appear to have had a great thickness, and they constitute, in their changed condition, some of the most interesting features in the geology of the north shore. The red felsite of the Great Palisades containing crystals of adularia, which is underlain by a very characteristic doleryte of the igneous group, and penetrated by numerous dykes from it, can be traced, in varied steps, on the one hand to its original condition, a shale of the Potsdam formation; and in the other direction, through step after step of metamorphic change, to a hard crystalline rock of red color and of a granular texture consisting essentially of orthoclase, quartz and hornblende. It is not always possible to observe a continuity of bedding from one extreme condition to the other. The circumstances of upheaval and metamorphism have generally been unfavorable for that. Some of the links are wanting in nearly every series of observations, but they are such as are supplied at other places—such places also failing to show other links. It may be supposed that it is necessary to make a perfectly connected series of contiguous observations, on a rock, *in situ*, changing from step to step, without interruption of the beds by dip or other cause, in order to establish the series; but such is not the case. When it once becomes evident that certain mineral associations are constant, if a part of these associations are observable, the rest may be relied on. When it is understood that there are two great sources of crystalline rock, the igneous and the metamorphic, and some of their related phenomena are established, such established phenomena are indices to show the origin of other new phenomena. Such new phenomena may again be taken in the same way to point others, and these again others. So at last a whole family of phenomena can be grouped together, although at no place can a connected series of all the phenomena be observed. In that manner, step by step, the lithology of the crystalline copper-bearing rocks can be reduced to two series. When these microscopic phenomena are in concord with and are affirmed by the field geology,as in the case on the north shore of Lake Superior, the true solution of some very interesting questions is found. The rocks of the second series, the result of the crystallization of the

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*From the proceedings of the American Association for the advancement of science, Vol. XXX, Cincinnati Meeting, August, 1881.

Potsdam shales and sandstones, are found to occupy a large area in the extreme eastern portion of Minnesota, northeast of Grand Marais, while those of the first series seem to prevail along the shore, and to cause mountain ranges at some distance from the lake.*

The following brief descriptions are intended to give a general idea of the two groups.

(A) ROCKS OF THE IGNEOUS GROUP.

1. (Survey No. 1.) Gabbro, "Duluth Granite." From Rice's Point, near Duluth; the rock of a low mountain range. Contains labradorite and changed augite, the latter being uralitic; also titantiferous magnetite.

2. (Sur. No. 49.) Behind the M. E. Church, Duluth. Contains augite, plagioclase, and magnetite, with viridite and ferrite.

3. (Sur. No. 53.) East Duluth. Coarsely crystalline. Contains plagioclase, augite, magnetite, and delessite, also some chrysolite and biotite. In some places this rock also shows orthoclase, making it resemble No. 5 of the Survey numbers.

4. (Sur. No. 90.) From the E. point of Sucker Bay. Contains plagioclase, augite, magnetite, chrysolite.

5. (Sur. No. 113.) Labradorite rock, from masses included in gabbro at Split-rock point.

6. (Sur. No 116.) From the point half-way between Split-rock point and Two Harbor Bay. Shows a basaltic structure. Contains plagioclase, augite, magnetite, viridite, opacite, and an occasional grain of biotite.

7. (Sur. No 123) From the bluff east of Castle Danger; a doleryte, containing plagioclase, augite, chrysolite, magnetite, and viridite.

8. (Sur. No. 126.) This is the rock that furnishes the black sand at Black Beach, a few miles W. of Beaver Bay, one-half mile up the creek. It seems to consist of plagioclase (labradorite?) hypersthene and magnetite, making the rock hyperyte. The metalloidal surfaces of the crystals in this rock resemble those of the rock of Encampment Island.

9. (Sur. No. 128.) Section of a large crystal of labradorite, from masses embraced in gabbro at Beaver Bay.

10. (Sur. No. 141.) Doleryte: first rock east of the Great Palisades, (lies below the Palisades?) Has augite, plagioclase, magnetite, viridite (and biotite?).

11. (Sur. No. 160) The rock that protects Little Marais on the east: plagiolase, augite, magnetite, also hematite and ferrite.

12. (Sur No. 199.) The rock of Grand Marais Harbor; plagioclase, pyroxene and magnetite; hematite, ferrite, apatite.

13. (Sur. No. 200) Cupriferous gabbro; from N. W. quarter Sec. 24, T. 61, R. 1. W. (up Fall river); plagioclase, augite (diallage?) magnetite, viridite, ferrite. There are thin sheets of native copper disseminated through the mass of this rock.

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*A series of fifty thin sections with samples of the rocks from which they were prepared, were exhibited, and examined at the table by means of polarized light, on a microscope kindly loaned for the purpose by Mr. W. H. Bulloch of Chicago, Ill. They were numbered successively from one to fifty, the first twenty-one being of the igneous group, and the next twenty-one of the metamorphic. The last eight, from forty-three to fifty, were selected to show a mingling of the minerals of both groups in one rock. The samples of rock were numbered in blue shellac with the field number of the survey. The labels attached to the slides name the most evident and abundant of the minerals seen in each, as they have been identified by the writer.

The rock, as a dyke, cuts a rock like that of the Great Palisades—an amorphous, red, but slightly porphyritic orthoclastic felsite.

14. (Sur. No. 221.) From a short distance east of the Brule′ river; plagioclase, diallage and magnetite; coarsely crystalline.

15. (Sur. No. 229.) Doleryte; Red-rock Bay; runs under the E. Palisades.

16. (Sur. No. 161.) From the hill 520 feet above the lake on N. E. quarter Sec. 25, T. 64, R. 7 E., represents the rocks of the hills about Grand Portage; a doleryte, consisting largely of diallage, plagioclase and magnetite, with chrysolite and a little prehnite.

17. (Sur. No. 275.) From the dyke at the brink of Pigeon river falls; augite, plagioclase, magnetite and chrysolite?

18. (Sur. No. 291.) From the extremity of Pigeon point peninsula; like No. 1 gabbro; plagioclase; diallage, chrysolite, viridite and magnetite.

19. (Sur. No. 297.) Gabbro(?) from the English Rapids, on the international boundary, near Grand Portage; associated with the Animikie Group; augite, plagioclase, magnetite.

20. (Sur. No. 637.) The labradorite rock of Beaver Bay from masses embraced in gabbro.

21. (Sur. No. 664.) Augite, plagioclase, magnetite; from a ridge a little more than two miles north of Horse-shoe Bay.

(b) *Rocks of the Metamorphic Group.*

22. (Sur. No. 1 B.) Brownish-red, hornblende syenite, associated intimately with No. 1. Duluth. Contains orthoclase (changed), quartz, hornblende (often changed), magnetite, apatite and ferrite.

23. (Sur. No. 3.) Brownish or reddish rock. In the Rice Point range of hills; suburbs of Duluth; interception of 5th Av. E. and 7th St.; abruptly separated from No. 1 A by a compact dyke; consists essentially of orthoclase (which makes it sparingly finely porphyritic), quartz and hornblende. It also has apatite, magnetite and ferrite

24. (Sur. No. 7.) Brownish-red rock, fine-grained. Between .2nd and 3rd avenues, Duluth, near the lake. Tabular and imperfect crystals of flesh-red feldspar (orthoclase), viridite (from hornblende), magnetite, apatite, and a small amount of quartz.

25. (Sur. No. 8 A.) Rock inclusion in Survey No. 8; very fine-grained gray rock, showing fine crystals of red feldspar, probably orthoclase, but for the most part this is an amorphous, felsitic mass embracing grains of magnetite and viridite, with other minerals.

26. (Sur. No. 8 B.) Porphyry, Duluth. Has orthoclase, chlorite, magnetite and other minute grains; plainly a rock resulting from the metamorphism of the sedimentary beds.

27. (Sur. No. 8.) Sub crystalline, showing much magnetite and quartz; also undistinguishable grains, some of which are probably viridite, hæmatite and pyrite, in a felsitic paste.

28. (Similar to Sur. No. 8 C.) Finely sub-crystalline, nearly destitute of free quartz, brownish or reddish. Duluth.

29. (Sur. No. 17.) Outwardly and microscopically, a thin-bedded red shale or sandrock; east of the Brewery creek, Duluth, at the lake shore. In thin section

shows a rusty felsitic base with much magnetite or menaccanite, and viridite; the whole clouded with amorphous inclusions.

30. (Sur. No. 33 B) Metamorphic shale. Duluth, at the lake shore; has a felsitic (?) ground-mass, showing a porphyritic orthoclase; magnetite, viridite, hæmatite, apatite, quartz.

31. (Sur. No. 67.) Metamorphic shale, London, near Duluth.

32. (Sur. No. 117.) The reddish vein from Two Harbor rock, Two Harbor Bay. Quartz grains and geodic aggregations, in a reddish orthoclase base.

33. (Sur. No. 124.) Rock of the west bluff, at the entrance to Beaver Bay. Quartz grains with impurities, in a reddish, dimmed base that seems to be orthoclastic, magnetite, apatite.

34. (Sur. No. 127.) Hardened gray shale, from near the mouth of Beaver creek. Quartz grains can be seen in an amorphous, apparently felsitic base.

35. (Sur. No. 129.) Similar to 127, but porphyritic with orthoclase and translucent grains like adularia; a few rods N. E. of the mouth of Beaver creek.

36. (Sur. No. 134.) Quartz, orthoclase, magnetite. The quartz makes up about one-quarter of the whole, the orthoclase perhaps two-thirds, but the magnetite is only in occasional grains. This is from the third island east of Beaver Bay.

37. (Sur. No. 136.) Is from opposite the fifth island east of Beaver Bay. Wholly crystalline red rock, containing quartz, orthoclase and much of a green mineral that is probably changed hornblende. This green mineral is generally fibrous, with spreading, fan-shaped radiations, but not always. Sometimes it shows simply a green felted polarization, always green at +.

38. (Sur. No. 138.) The rock of the Great Palisades; an orthoclastic felsite, porphyritic with adularia, resembling Sur. No. 129.

39. (Sur. No. 201.) Orthoclastic felsite, with a few distinct crystals of orthoclase and adularia or sanidin. This is the Palisade rock from the Copper mine up Fall river.

40. (Sur. No. 264.) From the same place as Sur. No. 263, east of Wauswaugoning Bay. Quartzite fragment embraced in gabbro, quartz and hornblende in a cement of felsite.

41. (Sur. No. 265.) From the upper part of Sur. No. 263, where in contact with the metamorphic rock. Results from the inclusion of a fragment of the sedimentary beds in the igneous. Contains quartz, orthoclase and hornblende, with ferrite and graphite.

42. (Sur. No. 668.) The "red granite" of the region northeast of Grand Marais. Consists of orthoclase, quartz and changed hornblende with magnetite.

(c) *Mixed Igneous and Sedimentary Rocks.*

43. (Sur. No. 1 A.) Gabbro. Duluth. Rice Point range, near a contact with No. 1 B. Contains labradorite, uralitic augite, and titaniferous magnetite. Some of the augite is changed toward viridite Orthoclase in occasional grains.

44 and 45. (Sur. No. 5.) At the depot, Duluth; labradorite, augite, quartz, magnetite, orthoclase, apatite. The augite is sometimes viriditic and sometimes uralitic.

46. (Sur. No. 6.) Labradorite, augite, magnetite, viridite (perhaps a result of change from hornblende) and an occasional grain of quartz. This is a dark-green,

heavy, homogeneous rock, coarsely crystalline, near the bay, in front of the Clark House, Duluth. The igneous type predominates.

47. (Sur. No. 46.) Rock showing the contact between the igneous and the metamorphic groups, from Duluth. One side of the section is red, and contains: quartz in perfectly distinct and abundant grains, making up about one-third or one-half of the whole; orthoclase, which is next in amount to the quartz, these two making up most of the section; apatite in small quantity; magnetite; ferrite and hornblende (?), in a few brownish-green or greenish grains which, on rotation at +, change from bluish-green to yellowish-green, and back again.

The other side is darker, and contains: plagioclase, augite grains (altered to uralite) disposed among the plagioclase, and in larger grains, sometimes fibrous and sometimes broken irregularly; magnetite in much greater amount than in the red rock; ferrite in small quantity.

48. (Sur. No. 263.) Contains the minerals both of the igneous and the sedimentary beds. From the E. side of Wauswaugoning Bay. Its position and limited extent show its accidental occurrence, and merely local importance. The igneous minerals are labradorite and magnetite. The sedimentary are quartz, orthoclase and hornblende. Apatite spicules penetrate them all.

49. (Sur. No. 282.) From the porphyritic main axis of the north part of Susie Island, near Pigeon Point. Contains plagioclase, orthoclase, hornblende, magnetite, quartz, pyrite.

50. (Sur. No. 675.) The rock of the top of Brule′ mountain, north of Grand Marais. Orthoclase, quartz, hornblende, plagioclase (?) magnetite, viridite, ferrite, chrysolite, apatite.

OBSERVATIONS.

The orthoclase of the metamorphic rocks is more readily disseminated through the igneous rocks than the triclinic feldspars of the igneous are through the metamorphic.

The magnetite of the igneous, as at Mayhew Lake, where it forms extensive beds of iron ore, may be derived from the exceedingly ferruginous sedimentary rocks. Magnetite seems to be always present in the crystalline metamorphic, and is probably the result of partial deoxidation from the indigenous hematite that gives them their color. Chemical analysis of the red shales would perhaps show the presence of titanium with the iron before metamorphism, and would indicate the correctness of this hypothesis. Wherever titanic iron is found in Minnesota, it is where the two series of rocks are in contact or proximity, so far as observed.

A fine shale becoming heated and slowly passing toward fusion will first show crystals of the easier fusible minerals, *i. e.*, orthoclase before quartz; and if the change stop there the resulting rock would be a non-differentiated (or felsitic) ground mass sprinkled with porphyritic feldspar crystals, all the siliceons parts being embraced in the ground mass. On the other hand, a fused sedimentary rock, passing to solidification, will first show crystals of the least fusible minerals, *i. e.*, quartz before orthoclase, and hence will contain more or less perfect crystals of quartz, cutting the sides of the later formed orthoclase. Hence the same metamorphic rock may show no quartz in one stage of metamorphism, but an abundance of free quartz in another. If the rock at first held grains of free quartz they would still remain in the former case, and would be an evidence of its original sedimentary source, and in the latter they would of course be subject to recrystallization.

The term felsite, as used in this paper, is intended to express a non-differentiated, somewhat metamorphic rock, derived from shale, without any reference to the origin of felsite rocks described in other places.

V.

THE MUSEUM.

Report for 1881, *and List of Additions.*

During the year, 955 entries have been made in the Museum register. While the most of these specimens have been obtained through the agency of the survey, as in former years, yet many have been received by exchange and by donations. Exchanges have been made with Profs. C. U. Shepherd, Geo. F. Kunz, E. S. Dana, P. H. Mill, Jr., S. Calvin and S. G. Williams. The principal donors have been Col. J. B. Clough, superintendent of the construction of the Northern Pacific Railroad, who has sent the Museum valuable mammalian and archæological specimens from Montana; Mr. W. E. Swan, who has preserved drillings from various deep wells in the State and presented them to the Museum; U. D. Watkins, fossils and other specimens from Ohio; C. E. Whelpley, preserved drillings from the Minneapolis deep well, and Prof. C. W. Hall, various rock specimens from New England. Other donors are Regents Sibley, Chute and Gilfillan, W. D. Hurlbut, J. M. Sullivan, C. M. Terry, H. A. Strong, R. F. Laythe, Prof. J. S. Clark, S. F. Heath, John A. Green, S. Deutsch, D. A. Locke, H. S. Peters and Dr. Miller, Asst. Surgeon U. S. A., Little Missouri Cantonment.

The fossils that have been collected from time to time have not been reported until their names were determined, and hence the most of them are still unreported. They are simply registered and labeled sufficiently to serve for identifying their sources. The crystalline rocks embraced in the series described in the survey report have not yet been registered in the Museum. They have the survey numbers only. Of some of them numerous duplicates have been obtained.

ELEPHANT'S TEETH FROM MONTANA.

Among the donations to the Museum by Col. J. B. Clough is a large elephant's tooth which is worthy of special mention. Its companion, a small specimen, was presented by Mr. S. Deutsch. The two were obtained in the same locality but seem not to have belonged to the same individual. Unfortunately the larger specimen has begun to disintegrate by crumbling, and it is doubtful whether it can be preserved.

These teeth were obtained near the Rosebud river in Montana, by the parties constructing the Northern Pacific R. R , but their special stratigraphical relations to the rocks of the region it has not been possible yet to ascertain. It has been stated by Mr. Deutsch simply that they were from a deep cut composed of clay and loose rock. The adhering portions of the matrix consist of a coarse, lime-cemented sand. or conglomerate like some known to exist in the cretaceous and tertiary, and the tooth is probably not of post-tertiary age.

The larger tooth measures 12¾ inches in length and 6½ inches in transverse perpendicular section. Across the grinding surface it measures a little more than 3½ inches. It has, distinctly preserved, 20 transverse plates. There is an appearance, on the anterior extremity, of a thin, imperfect plate, partly eroded, only a double scale of enamel remaining, separated from the body of the tooth by a little cement. This plate with its cement does not occupy the full width nor depth of the tooth, but was especially pitted to receive the first attrition on the tooth and to maintain its form and position, as the tooth advanced. The posterior end of the tooth also has the appearance of having consisted of one or two more plates originally, but they are now lost by the disintegration which has attacked the whole tooth. Thus the plates must have numbered 22 or 23. The plates existing seem to have all suffered some grinding attrition, but only the anterior sixteen are so worn as to show on the crown the double enamel ridges. The posterior ones, which are more and more inclined forward, the farther they are removed from the front, are either in the immature stage of separate denticles which are not yet united on their summits, or are so involved with the cement that they are not yet even worn so as to produce the annular ridge of enamel exhibited by those farther advanced. The bases of these plates, however, with denticles at their summits, are united together into a common complex fold, firmly binding the tooth in one mass. This therefore seems to have been the sixth or last, molar of a mature elephant, or mammoth, and from the lower jaw.

The smaller tooth has lost by disintegration and fracture apparently about four of its plates from its posterior extremity. While it was found in the same locality it was probably not from the same individual. Its crown appears to have been unequally opposed by the tooth of the other jaw, for its plates are not worn off so as to show continuous transverse ridges of enamel, except on the anterior portion, the greater number of plates being simply rounded over, the denticles standing above the surface with their natural curved contour, with no flattened, grinding sarface. From the fact that the denticles are somewhat worn they must have served for mastication. The smooth, flattened, and oppressed appearance of the anterior extremity indicates that the preceding tooth had not yet been shed, but had been thrust by mastication constantly against it. Still it was not wholly protected by its predecessor, but was exposed *on the end*, as well as on the grinding surface to the attrition of mastication, and its most advanced corner is worn off obliquely by that means. It had about fourteen plates and its length was about ten inches. It was probably the fifth upper molar of the extinct mammoth.

The region in which the teeth were found is not drift-covered, but the soil and surface debris is the result of local disintegration of the cretaceous or tertiary beds. It is hence very probable that these teeth are true fossils, of an age prior to the glacial epoch.

SPECIMENS REGISTERED IN THE MUSEUM IN 1881.

Serial Numbers.	OBTAINED.		NAME.	No. of Specimens.	Locality.	Formation.	Collector and Remarks.
	When.	Whence.					
3736	Aug., 1880	C. W. Hall.	Granite	2	Rockport, Mass		C. W. Hall, Rockport Granite
3737	"	"	Granite	2	Quincy Mass		" Quincy Granite
3738	"	"	Petrosilex	4	Marblehead Neck, Mass	Huronian	" Porphyritic
3739	"	"	Diorite	2	" "	"	"
3740	"	"	Diorite	1	" "	"	"
3741	"	"	Petrosilex	2	" "	"	" Finely Crystalline, weathering surface shows effect of pressure on the bedding
3742	"	"	Granite	2	Manchester, Mass	Montalban	C. W. Hall, considerably weathered
3743	"	"	Serpentine	1	Lynn, Mass		"
3744	"	"	Breccia	2	Marblehead Neck, Mass	Shawmeet	" Petrosilicious
3745	"	"	Breccia	6	" "	"	" Water-worn and weath'd
3746	"	"	Dialase	2	Salem Harbor Baker' Slam	Naugus H'd Series	" Showing vein of Elvanite
3747	"	"	Feldspar	1	" "	"	" Pyroxenic
3748	"	"	Beach pebbles of Petrosilex	5	Marblehead Neck, Mass	Huronian	" Showing bedded structure
3749	"	"	Beach pebbles of Petrosilex	10	" "	"	" " Porphyritic
3750	"	"	Beach pebbles of Diorite	4	" "	"	"
3751	"	"	Slag from iron furnace	2	Detroit, Mich.		" Form'd in smelt'g sc'p iron
3752	Oct., 1880	"	Haematite	1	Kewanaw, Vt	Huronian	C. W. Hall, Micaceous and folded by pressure
3753	"	"	Limestone, Glen's Table Block Marble	1	Glen's Falls, N. Y	Trenton	Presented by J. M. Sullivan
3754	"	"	Sandstone	2	Opp Fond du Lac	Potsdam	Used in const'n of Westminister C'h.
3755	Nov., 1880	Geol. Survey	Sandstone	1	Taylor's Falls	St Croix	C M. Terry, show'g lines of iron stain
3756	"	C. M. Terry	Shell Limestone	2	St. Agustine, Fla	Tertiary	Presented by C. M. Terry
3757	Dec., 1880	Geo. Nat. Hist. Sur.	Galenite, (weight 390 lbs.)	1	Galena, Ill	Galena	Purchased by Regent Chute
3758	Nov., 1880	C. U. Shepard	Meteoric Iron found in 1865	1	Bonanza, N. Mexico		By exchange with Prof. C. U. Shepard
3759	"	"	Meteoric Stone, Jan. 30, 1868	1	Poltusk Vasovia, Poland		" "
3760	"	"	Meteoric Stone, Jan. 9, 1866	1	Knyahinya, Hungary		" "
3761	"	"	Meteoric Stone, Feb. 26, 1847	1	Linn Co. Iowa		" "
3762	"	Alf'd R. C. Selwyn	Meteoric Stone, found in 1872	1	Mitchell Co., Kansas		" "
3763	"	Geol & Nat Hist Sur	Eozoon Canadense	3	Petite Nation, Can	Lan.	Presented by the Geol. Sur. of Canada
3764	Dec., 1880	"	Cubic Galenite, (slab on carb. zinc)	1	Galena, Ill	Galena	Purchased by Regent Chute
3765	"	"	Cubic Galenite	6	"	"	" "

Specimens Registered in the Museum in 1881—*Continued.*

Serial Numbers.	OBTAINED.		NAME.	No. of Specimens.	Locality.	Formation.	Collector and Remarks.
	When.	Whence.					
3766	Dec., 1880	Geol & Nat Hist Sur	Sphalerite	1	Galena, Ill	Galena	Purchased by Regent Chute
3767	“	“	Pyrite	4	“	“	“ “
3768	“	“	Ores from Galena	3	“	“	“ “
3769	“	“	Pyrite, (cylindrical stems)	4	“	“	“ “
3770	1880	“	Brick	1	Marshall		Warren Upham, (W. A. Crooker, Maker)
3771	“	“	Brick	1	Jackson		Warren Upham, (Maj. H. F. Bailey)
3772	“	“	Brick	1	Marshall		Same, (James M Lockey)
3773	“	“	Granite	6	Near W line sec 29, Posen, Y. Med. Co.		“
3774	“	“	Granite	21	1½ m S E from Big Stone Lake		“
3775	“	“	Granite (?)	....	Redwood Falls		“ (Quarried)
3776	“	“	Gneiss	25	2 m S E from Montevideo		“
3777	“	“	Gneiss	21	Granite Falls		“ Excavated in Main street)
3778	“	“	Cretaceous Sandstone	20	Sec. 12, Altavista, Lincoln Co.	Cret	“
3779	“	“	Granite	3	N E ¼ sec 32, Echo, Y. Med. Co.		“ Nearly all this outc'p is Gneiss
3780	“	“	Hornblendic Schist	3	Sec 17, Omro, Y. Med, Co., (N W outcrop)		“
3781	“	“	Hornblendic Schist	8	“ (S E outcrop)		“
3782	“	“	Cemented Drift Gravel	3	S W ¼ sec 31, Nordland, Lyon Co		“
3783	“	“	Pottery Clay	3	N part sec 3, Sigel, Brown Co.	Cret	“
3784	“	“	Protogine Gneiss	3	West side Redwood river,		“ Opp. Birum's mill.
3785	“	“	Cretaceous Sandstone (?) weathered)	2	N E ¼ sec 20, Eidsvold, Lyon Co	Cret	“ On land of Henry Jacobs,
3786	“	“	“ “ (fresh)	3	“ “	“	“
3787	“	“	Red Quartzyte	....	N E ¼ sec 25, Selma, Cot. Co.	Potsdam	“
3788	“	“	Potsdam Sandstone, (Quartzyte range)	....	N E cor. sec 36, Germantown, Cot. Co	“	“ At Mound Creek Falls
3789	“	“	Red Quartzyte	......	W p't S W ¼ sec 6, Dale, Cot. Co	“	“
3790	“	“	Red “	....	“ “	“	“ Containing breccia fragments of Pipestone
3791	“	“	Lignitic Sandstone	4	S E ¼ sec 2, Eidsvold, Lyon Co	Cret	“ “Petrified tree.”
3792	“	“	Clay containing Cretaceous shells	1	Sec 8, T 111, R 38, Redwood Co		“ (Absalom Ames' well)
3793	“	“	Gneiss	1	N E ¼ sec 12, T 111, R 38, “		“

3794	1880	Geol & Nat Hist Sur	Pipestone enclosed in Quartzyte	2	S W ¼ sec 2, Amboy, Cot. Co	Potsdam	"	(Much jointed)
3795	"	"	Red Quartzyte	2	S E ¼ sec 23, Selma, Cot. Co	"	"	
3796	"	"	Red "	2	S W ¼ sec 18, Delton, "	"	"	
3797	"	"	Pipestone in Quartzyte	5	W p't S W ¼ sec 6, Dale, Cot. Co	"	"	Peter Schmidt's quarry
3798	"	"	Potsdam Quartzyte	2	N p't sec 31, Stately, Brown Co	"	"	Falls in E branch of Mound Cr
3799	"	"	Sandstone (Oolitic in structure)	1	N W ¼ sec 7, Eidsvold, Lyon Co	Cret	"	
3800	"	"	Lignitic Cretaceous Sandstone	1	N W ¼ sec 3, Sigel, Brown Co	"	"	Overlying pottery clay (No 3783)
3801	"	"	Gneiss (weathered)	1	N E ¼ sec 12, T 111, R 38, Redwood Co		"	
3802	"	"	Cretaceous Sandstone	2	Sec 7, Westerheim, Lyon Co		"	
3803	"	"	Potsdam Quarztyte	2	N E cor. sec 36, Germantown, Cot. Co		"	At Mound Creek Falls
3804	"	"	Cretaceous Sandstone	2	Sec 12, Altavista, Lincoln Co		"	
3805	"	"	Bones and Petrified Wood	4	Shore of Swan Lake, N W Cor Redwood Co	Drift	"	Pres. by Malcolm McNiven
3806	"	"	Lepidodendron	1	Lake Okabena, Worthington	"	"	Pres. by J. A. Phelps
3807	"	"	Quartzyte	3	Mound, Rock Co		"	J. F. Shoemaker's Quarry
3808	"	"	Cretaceous Sandstone, with leaf impressions	1	N side Cottonwood river, sec 25, North Star		"	Pres. by John F. Burns
3809	"	"	Cretaceous Sandstone, (fossiliferous)	1	" "		"	" "
3810	"	"	Brick	1	Brainerd		"	(Mr. Schwartz, maker)
3811	"	"	Sandstone	27	Hinckley, Pine Co	Potsdam	"	
3812	"	"	Trap	4	Watab, Benton Co		"	Forming S E side of T. N. Newson's shaft
3813	"	"	Syenite	2	" "		"	Talcott, Castle & Co
3814	"	"	Syenite	2	" "		"	land of Jos. Campbell
3815	"	"	Trap	...	Chengwatana, Pine Co		"	
3816	"	"	Syenite, (very dark)	2	N W ¼ sec 33, St. Cloud		"	
3817	"	"	Syenite	3	N. E. ¼, sec 32, St. Cloud		"	
3818	"	"	Syenite	2	S W ¼ sec 17, Haven, 4 m S E of St. Cloud		"	Robbers & Barthelemy's quarry
3819	"	"	Red Syenite	3	Haven, 2 m S E of St. Cloud		"	Breen & Young's quarry
3820	"	"	Gray Syenite	4	" "		"	
3821	"	"	Gray Syenite	3	Sauk Rapids		"	Collins, Mitchell, and Searle
3822	"	"	Staurolitic Schist	2	3 m s of Pike Rpds in E bnk Miss		"	I. P. Lambert's land
3823	"	"	Syenite	2	Sec. 26, St. Joseph, Stearns Co		"	Fred Schilplin's land
3824	"	"	Syenite	1	2 mi. W. of Cold Spring		"	
3825	"	"	Syenite	1	Cold Spring, Stearns Co		"	
3826	"	"	Vein and Reddish Syenite	1	Sec. 27, Watab, Benton Co		"	T. N. Newson's shaft
3827	"	"	Syenite (coarse grained)	2	Sec. 19, St. Augusta, Stearns Co		"	
3828	"	"	Syenite	1	N W ¼ sec 17, St. Cloud		"	
3829	"	"	Syenite (dark)	1	Sec. 27, Watab, Benton Co		"	Hill 1-6 m E. of Newson's shaft
3830	"	"	Syenite (reddish)	1	Sec. 35, Watab, Benton Co		"	H. D. Gurney's quarry
3831	"	"	Syenite (red)	1	Le Sauk, Stearns Co		"	½ m N. of Sartell's grist-mill
3832	"	"	Granite (coarse)	2	Rockville, Stearns Co		"	only rock at Rockville
3833	"	"	Syenite (dark)	1	Sec. 27, Watab, Benton Co		"	N W side of hills near Miss
3834	"	"	Syenite (grey)	1	Sec. 35, Watab, Benton Co		"	H. D. Gurney's quarry
3835	"	"	Syenite (dark)	2	2 m s e of Richmond, Stearns Co		"	
3836	"	"	Syenite (reddish, fine grained)	1	Cold Spring, Stearns Co		"	
3837	"	"	Syenite or Granite	1	East p't sec 18, St. Cloud		"	
3838	"	"	Porphyry	1	Sec. 19, St. Cloud		"	(locality not visited)

Specimens Registered in Museum in 1881—*Continued.*

Serial Numbers.	Obtained.		NAME.	No. of Specimens.	Locality.	Formation.	Collector and Remarks.
	When.	Whence.					
3839	1880	Geol & Nat Hist Sur	Rock somewhat used for railroad masonry	2	Quarried near Thompson or Duluth		“ (from Brainerd car-shops)
3840	“	“	Syenite	1	Sec. 21, Le Saux, Stearns Co		“ at Sartell's grist-mill
3841	“	“	Syenite (dark)	1	S W cor sec 28, St Cloud		“ (In road.)
3842	“	“	Syenite (porphyritic, reddish)	1	Sec. 27, Watab, Benton Co.		“ w side of vein T N Newson's shft
3843	“	“	Agates	1	Royalton, Morrison Co	Drift.	“ presented by Harry Young
3844	“	“	Vein	1	Sec. 27, Watab, Benton Co		“ T. N. Newsons shaft
3847	“	“	Kaolin	1	Mouth of Two Rivers, Mor'n Co	Cret.	“ Calvin A. Tuttles well
3848	“	“	Garnetiferous Schist		2 m. below Pike Rapids		Warren Upham, W. side of Miss. R
3849	“	“	Pebbles from Sandstone		Knife R. bridge on Snake R	Potsdam.	“ 6 m N. of Buns'ck, Kan'c Co.
3850	“	“	Sandstone	6	Knife R. bridge on Snake R	Potsdam.	“
3851	“	“	“	8	7 m. E. N. E. of Rush City, ½ m. above mouth of Rock Creek	St. Croix.	“ Minn. side of St. Croix River.
3852	“	“	“	2	“ “	“	“ Wis “ “ “
3853	“	“	“ containing large pebbles	1	“ “	“	“ “ “ “
3854	“	“	Red Shale used for paint	1	St Croix R bet Snake & Kettle R's	“	“ a layer in sands'ne on Wis side
3855	“	“	Fossiliferous Shale	5	30 rds. above Taylor's Falls Bg.	“	“ West bank St Croix River.
3856	“	“	“ “	5	Taylor's Falls	“	“
3857	“	“	Trap	1	“ “		“ near N. C. D. Taylor's shaft
3858	“	“	“	2	“ “		“
3859	“	“	“	1	“ “		“ at Landing
3860	“	“	“	1	1 m. S. W. Taylor's Falls		“ under the conglomerate
3861	“	“	“	1	“ “ “		“ over “ “
3862	“	“	Cuprif. Conglomerate in trap rock	1	“ “ “		“ Dip. 12° W S W bed, 8 ft thick
3863	“	“	Vein-matter	4	“ “ “		“ Taylor's Falls, Mining Co
3864	“	“	Ore (Arseno-pyrite?)	1	“ “ “		“ found in Trap
3865	“	“	Native Copper	1	“ “ “		“ Taylor's Falls Mining Co.
3866	“	“	Ore (Ruby blende?)	1	“ “ “		“ bet shafts of N. C. D. Taylor & T. F. Mining Co
3867	“	“	Sandstone, fossiliferous	2	Franconia ½-¾ m north of Munch's mill. St. Croix	St. Croix.	W Uph'm, in ravine of Lawr'nce Creek
3868	“	“	“ “	1	At Munch's mill, Franconia	“	“ (Mill is built of this)
3869	“	“	Shale	2	“ “	“	“

3870	1880	Geol & Nat Hist Sur	Sandstone, fossiliferous	10	Franconia, Chisago Co	St. Croix.	W. Upham
3871	"	"	Calcareous Tufa	4	" 1-5 m. S of Munch's Mill		" used for lime, very large dep't.
3872	"	"	Gneiss (weathered)	1	N E ¼ Sec 32 Echo Yel Med Co.		"
3873	"	"	Granite (coarse, reddish, feldspathic)	1	" " " "		" at S. end of Gneiss
3874	"	"	Mica Schist (black) in Gneiss	1	" " " "		"
3875	"	"	Gneiss	1	N E ¼ sec 12; T 111, R 38, Redwood Co		"
3876	"	"	Mica Schist (dark) in Gneiss	1	N E ¼ sec 12, T 111, R 38, Redwood Co		" in two or three masses, each 2or 3 feet long
3877	"	"	Gneiss	1	Redwood Falls		Warren Upham, Main Falls
3878	"	"	Trap dike	1	" "		" "
3879	"	"	Hornblende Schist	1	East Granite Falls		" bet bridge and Pillsb'y's El'or.
3880	"	"	" (jointed, traplike)	1	" "		" at Pillsbury's elevator
3881	"	"	Red Quartzyte	1	N W ¼ sec 29, Adrian, Wat. Co.	Potsdam.	"
3882	"	"	" "	1	S E ¼ sec 30, Delton Cot. Co.	"	"
3883	"	"	" "	1	N W ¼ s 28, Storden Cot. Co.	"	"
3884	"	"	Specimens of stone	....	R. R. well at Heron Lake	"	" the red pieces from 180-220 ft., the yellow lower, 1 ft. thick
3885	"	"	" "	....	" " "	"	W Uph'm, drilled thro. in 1st 180-220 ft.
3886	"	"	Red Quartzyte	2	Pipestone City	"	" quarried by Chas H Bennett
3887	"	"	Red Quartzyte (ripple marked)	2	" "	"	" " "
3888	"	"	Conglomerate	1	4 m. S. W. from Pipestone City.	"	
3889	"	"	Red Quartzyte	2	Dell Rapids, Dak., 18 m. N. of Sioux Falls	"	"
3890	"	"	" "	2	Sioux Falls, Dak	"	"
3891	"	"	" "	1	Devils Gulch, Minnehaha Co. Dak. 2½ m. N. E. of Palisades	"	"
3892	"	"	Pipestone	1	Palisades, Minnehaha Co., Dak.	"	" stratum. 5 ft. thick, 5 rods S. of dam and 10 feet below
3893	"	"	" (mottled variety)	1	" " "	"	W. Upham, " "
3894	"	"	"	1	" " "	"	" ¼ m. S. W. of mill, 7 ft. thick.
3895	"	"	Sandstone (pink)	2	" " "	"	" half way in location and appearance, between pipestone and "chalk rock", all being in s. plane.
3896	"	"	" (white)	4	" " "	"	W Up'm, "chalk rock", 20 rds. E of dam, and in plane with pipestone.
3897	"	"	" (white) a var. holding concretions	2	" " "	"	W Up'm, "chalk rock" grad ch to this
3898	"	"	" (pink)	1	" " "	"	" lower pt of bed of "ch'lk r'ck".
3899	"	"	St. Lawrence Limestone	1	Judson, Blue Earth Co	Lr. Mg.	" Mrs G W Wolf's qu'y at house
3900	"	"	" " " (arenaceous)	1	" "	"	" q ⅛ m S E of hs; lower pt of bs
3901	"	"	" " " "	1	" "	"	" ⅓ m W of Mrs G W Wolf's hs; lower part of beds
3902	"	"	" " " "	1	" "	"	W. Upham, C. G. Swanson's quarry
3903	"	"	Jordan Sandstone	1	Near center of N W ¼ sec 12 Jud.	Jordan.	" brink of unnamed water fall.
3904	"	"	" "	1	Minneopa Falls, Blue Earth Co.	"	"
3905	"	"	" "	1	N. W. ¼ sec. 17, South Bend, Blue Earth Co	"	"
3906	"	"	Shakopee Limestone	1	South Bend, Blue Earth Co.	Shakopee.	" David P Davis' quarry
3907	"	"	" "	2	L B'nk, Wat. R, N E of G'dn C'y	"	" qy. on S M Folsom's estate.
3908	"	"	" "	1	W. side Maple R., S W ¼, sec. 12; Rapidan B. E. Co.	"	" Columbus Ballard's quarry.

Specimens Registered in Museum in 1881—*Continued.*

Serial Numbers.	OBTAINED.		NAME.	No. of Specimens.	Locality.	Formation.	Collector and Remarks.
	When.	Whence.					
3909	1880	Geol & Nat Hist Sur	Sandstone containing lignite-particles	1	Sec. 6 Rutland, Martin Co.	Cretaceous.	" G S Livermore's land, sometimes oolitic, like the Altavista stone which perhaps corresp'ds with this.
3910	"	"	Sandstone	2	" " S side Elm Creek	"	Warren Upham, G S Livermore's land.
3011	"	"	Willow leaf in sandstone (A)	2	Sec 25, North Star, Brown Co.	"	same, N. bank of Cottonwood River.
3912	"	"	" " " (B)	1	" " " "	"	" " " "
3913	"	"	Clay	1	R R well at Wal't Grove, Red Co	"(?)	" 60-80 feet
3915	"	"	Iron Pyrites	1	P. Crampton's well, S W ¼ sec 8, Eidsvold Lyon Co	"	" ....
3920	"	"	Gypsum	1	Sec. 28, Grand View, Lyon Co.	"	" S. W. Lathe's well
3921	"	"	Clay in hollows of Shakopee Limestone	1	South Bend, Blue Earth Co.	"	" ....
3922	"	"	Clay	1	Red Jacket Mills, Blue Earth Co	"	" used by A Gapter at Mankato for pottery
3923	"	"	Gravelly Clay	1	" " "	"	" thin layer in sand at base of Gapter's clay bank
3924	"	"	"Chalk"	1	" " "	"	" Gapter's clay-bank
3925	"	"	Limestone	1	White Earth Agency	Drift.	" boulders and gravel, common.
3926	"	"	Specimen of the "Three Maidens"	1	Pipestone Quarry, Pipestone Co.	"	" originally one gigantic boulder.
3927	"	"	Calcareous Tufa	....	Camden Mill, Lynd, Lyon Co.	....	" ....
3928	"	"	Septaria	1	Jackson, Jackson Co	Drift.	" from a cellar, pres. by G. C. Chamberlin
3929	"	"	Septaria-like stone	1	Sec. 6 Rutland, Martin Co.	"	" ....
3930	"	"	Drift gravel, cemented by calc. tufa	1	Garden City, Blue Earth Co., 20-30 rds E of E T Nort'n's hs	"	" S E side Wat. River
3931	"	"	Iron-cemented gravel	1	Red Jacket Mills, Blue Earth Co	"	" above pottery clay (3922)
3932	"	"	Petrified wood	....	" " "	"	" found by Georgie S. Bingham
3933	"	"	Wood, S. C. Gale's well	....	Sec. 10, Gales, Redwood Co.	"	" at 27 feet, below blue till
3934	"	"	Hollowed pebbles	....	" " "	"	" presented by S.C. Gale
3935	"	"	Hollowed pebbles	1	S. W. Minnesota		
3936	"	"	Efflorescence	....	Sec 14, Iona, Murray Co	"	" ....
3937	"	"	(Scale)	1	Marshall, Lyon Co	....	" from thresher boiler used 3 mos
3938	"	Geo. F. Kunz.	Vertebra	1	Charleston, S. C	Cretaceous.	By exchange
3939	"	"	Chlorophane	1	Hardin Co., Ill	....	" ....

3940	1880	Geo. F. Kunz.	Celestite and Sulphur	1	Mt. Girgenti, Sicily	Cretaceous.	By Exchange	
3941	"	"	Sphalerite and Marcasite	2	Missouri		"	
3942	"	"	Calcite, (Dog tooth Spar)	1	Falls of Ohio, Louisvile, Ky		"	
3943	"	"	Silver on Galena and Sphalerite	1	Silver City, Ark		"	Demby mine
3914	"	"	Natrolite	1	Aussig, Bohemia		"	
3945	"	"	Gold and Silver	1	Silver City, Ark		"	Diamond Joe mine
3946	"	"	Whalebone	1			"	
3947	"	"	Aragoanite. "Sprudelstein"	1	Karlsbad, Bohemia		"	
3948	"	"	Gold and Silver	4	Silver City, Ark		"	
3949	"	"	" " in slate	1	" "		"	Diamond Joe mine
3950	"	"	Aphorite	1	Lime Rock, R. I		"	
3951	"	"	Wavellite, (white variety)	1	Bohemia		"	
3952	"	"	"	1			"	
3953	"	"	Ottrelite	1	Ottrez, Belgim		"	
3954	"	"	Magnetite	1	Port Morris, N. Y		"	
3955	"	"	(?)	2	England		"	
3956	"	"	Monazite	1	Koralfet, Sweden		"	
3957	"	"	Elaeolite—sunstone—	1	Magnet Cove, Ark		"	
3958	"	"	Fascicolite	1	Vermont		"	
3959	"	"	Phyllite	1	Chauston, R. I		"	
3960	"	"	Bituminous Coal	Indf	Mahoning Co., Ohio		"	
3961	"	"	Pseudovermiculite	2	Magnet Cove, Ark		"	
3962	"	"	Ore from Iron mine	2	Monroe, N. Y		"	
3963	"	"	Pyrite and Hematite	1	Rossie, N. Y		"	
3964	"	"	Vasite	1	Ytterby, Sweden		"	
3965	"	"	Rosettes of Nigrine	6	Magnet Cove, Ark		"	
3966	"	"	Fluorite	2	Hardin Co., Ill		"	
3967	"	"	Brookite on rock	1	Magnet Cove, Ark		"	
3968	"	"	Hydrolitanite	3	" " "		"	
3969	"	"	Perofskite	Indf	" " "		"	
3970	"	"	Schorlomite	1	" " "		"	
3971	"	"	Nacrite on Calcite	1	Lime rock, R. I		"	
3972	"	"	Bowenite	1	Cumberland, R I		"	
3973	"	"	Gehlenite	1	Austria		"	
3974	"	"	Kjerulfin and Tschernakite	1	Norway		"	
3975	"	"	Ludwigite	1	Westphalia		"	
3976	"	"	Erbenstein	1	Karlsbad, Bohemia		"	
3977	"	"	Hornblende in quartz	1	Cumberland, R. I		"	
3978	"	"	Quartz geode	1	Brazil		"	
3979	"	"	Smoky quartz	1	Minas Geras, Brazil		"	
3980	"	"	Glauconite	2	Marlboro, Monmouth Co., N. Y		"	
3981	"	"	Piece of shark's rib	1	Charleston, S. C		"	
3982	"	"	Conglomerate	1	Pennsylvania		"	oil layer
3983	"	"	Pearl Spar	1	Niagara Falls, N. Y		"	
3984	"	"	Calcite, (hexagonal)	1	St. Anthony's Nose, N. Y		"	
3985	"	"	Calcite (dog-tooth spar) and dolomite	1	Lockport, N. Y		"	
3986	"	"	" "	1	Niagara Falls, N. Y		"	
3987	"	"	Petragotus sp?	1	Buffalo, N. Y		"	
3988	"	"	Calc tufa, replacing sticks	1	New York		"	
3989	"	"	Coral	4	Falls of Ohio, Louisville		"	
3990	"	Geol & Nat Hist Sur	Shakopee limestone	3	St. Peter, Nicollet Co	Shakopee.	Warren Upham, Jno. Malgrien's quar'y	

Specimens Registered in Museum in 1881—*Continued.*

Serial Numbers.	OBTAINED.		NAME.	No. of Specimens.	Locality.	Formation.	Collector and Remarks.
	When.	Whence.					
3991	1880	Geol & Nat Hist Sur	Shakopee Limestone, (weathered)............	1	St. Peter, Nicollet Co.........	Shakopee.	Warren Upham, A. J. Lamberton's quarry, worked by Hugh Brogan.
3992	"	"	"	1	Eagle Creek, 4 m E of Shakopee	"	Warren Upham, Thos. Durose's land.
3993	"	"	"	2	Mankato.....................	"	" George Maxfield's quarry, the three foot shaly cement layer.....................
3994	"	"	"	1	"	"	" Geo. Maxfield's best cut stone 4 feet thick, next below the shaly layer..................
3995	"	"	"	1	"	"	" Geo. Maxfield's quarry, cut stone at 6 feet above shaly layer....................
3996	"	"	"	1	"	"	" Geo. Maxfield's, 12 or 15 feet above shaly layer; red layer of cut stone 3 feet thick....
3997	"	"	"	3	Lime S E ¼ sec 19, Blue Earth Co	"	" Joseph Kunz's quarry..........
3999	"	"	"	1	Mankato	"	" J. R. Beatty—the quarry on road to Red Jacket mill, said to yield good hydr. cement
4000	"	"	"	3	Lime sec 20, Blue Earth Co.....	"	" J. R. Beatty.................
4001	"	"	" (iron-stained)................	1	1-5 m s of Sioux City, Merriam Junction, Scott Co..........	"	" In railroad cut................
4002	"	"	"	4	Sec. 18, Decoria, Blue Earth Co	"	" Matt Ryan's quarry...........
4003	"	"	Jordan sandstone..........................	2	Jordan, Scott Co..............	Jordan.	" Frank Nicolin's quarry........
4004	"	"	"	8	" "	"	" Foss, Wells & Co's. quarry....
4005	"	"	Trenton limestone..........................	3	Sec. 27, Eureka, Dak. Co.......	Trenton.	" Amund Torgerson's quarry.....
4006	"	"	Boulder containing a green mineral...........	3	Blooming Grove, Waseca Co....	Drift.	" ....
4007	"	"	Pebbles and Boulders.......................	Indf	Sec. 13, Kiester, Farib. Co......	"	" from top of Kiester hills & kames
4008	"	"	Round pebbles from hollows in Shak. limestone	....	Sec 19, Lime, Blue Earth Co....	....	" At J. Kunz' quarry, probably preglacial river gravel.....
4009	"	"	Boulder (15 ft. in diameter).................	1	1½ m. E. of Shakopee..........	Drift.	" ....
4010	"	"	Black, fetid mud...........................	1	Freeborn, Freeborn Co.........	"	" 1 foot thick in well at 95 feet...
4011	"	"	Upper Till................................	1	" "	"	" coal boring, 1880.... ....
4012	"	"	Dark, very hard Till.........................	1	Verona Star Mills.............	"	" Alex Halliday.................

4013	1880	Geol & Nat Hist Sur	Dark, very hard Till, sandy portion of	1	Verona Star Mills	Drift.	Warren Upham, Alex Haliday
4014	"	"	Yellow Till	1	" "	"	Same "
4015	"	"	Brick, cream-colored	2	Mankota, Minn.		" Mankato Brick Co.
4016	"	"	Brick, red	1	" "		" " "
4017	"	"	"	1	" "		" F. Polchow & Co.
4018	"	"	"	1	" "		" Williams & Grothe
4019	"	"	"	1	Sec 8, McPherson, B. E. Co		" Gekler Bros
4020	"	"	"	1	Sec. 11, Verona, B. E. Co		" Westbrook & Ferguson
4021	"	"	"	1	Albert Lea		" Rusfeldt & Kleven,
4022	"	"	Lignite	3	Little Missouri R. Dak		N. H. Winchell
4023	"	"	Silicified wood	2	" "		Same
4024	"	"	"	1	" "		Presented by Capt. Wolfalk,
4025	"	"	Concretions of (?)	2	" "		N. H. Winchell
4026	"	"	Slags	3	" "		Same { Produced by burning of lignite beds
4027	"	"	Indurated clay, (red)	3	" "		" " " "
4028	"	"	" (banded)	3	" "		" " " "
4029	"	"	Limestone	15	Lanesboro	St Lawrence	"
4075	"	"	"	17	Near Spring Valley	Trenton.	" Weisbach's Dam
4089	"	"	" slab	1	Spring Valley	Galena.	"
4096	"	"	Silicious buhr-stone	1	Bennington, Mower Co	Drift.	"
4099	"	"	Limestone	13	Lime City	Galena.	"
4108	"	"	Lead ore, (on the St. Lawrence Limestone)	3	Dresbach, Minn	St. Croix.	" Winona Co. Mining Co.
4109	"	"	Green sand	3	"	"	" " "
4110	"	"	Flag and sandstone, (lingula bearing)	12	"	"	" " "
4111	"	"	Iron septaria	2	"		" " "
4112	"	"	Freestone	1	"	St. Croix.	" " "
4114	"	"	Brick	1	Sec. 34, Manomin		Warren Upham, Peterson & Benson.
4115	"	"	Mineral Paint	1	Redwood Falls.		" Manufactured 1869.
4116	1881	H. A. Strong.	Limestone	1	Decorah, Iowa	Trenton.	{ Pres. by H. A. Strong, Decorah, "Fossil Marble"
4117	"	Edw. S. Dana.	Danburite, Crystal groups	3	Russel, St. Lawrence Co., N. Y.		By exchange with Yale College
4118	"	"	" detached crystals	2	" "		Same
4119	"	"	"Pallas Iron," meteoric	1	Krasuojarsh, Siberia		" Date of discovery, 1876
4120	"	"	Meteoric Iron	1	Augusta Co., Va.		" Date of discovery 1858-59
4121	"	"	" stone	1	Sleele-Nowy, Poland		" Date of fall Jan 30, 1868.
4122	"	"	" "	1	Weston, Conn.		" Date of fall, Dec. 14, 1867
4123	"	"	" iron	1	Sylanieza, Hungary		" Date of discovery, 1844
4124	"	"	" stone	1	Parnallee, India, (Hindostan)		" Date of fall, Feb. 28, 1857
4125	"	C. W. Hall.	" iron, showing Widmanstathian figures	1	Estherville, Emmet Co., Iowa.		Presented: { date of fall, May 10, 1879
4126	"	G. H. Dike.	Ammonites sp. (?), part of a cast	1	Foot hills, Black Hills		" by Mr. Dike
4128	May, 1879	By Purchase.	Peckhamite	Sev.	Estherville, Iowa		{ The new mineral found in the Estherville meteorite and named by Dr. J. L. Smith after Prof. S. Peckham. (See Am. J. Aug. 1880)
4129	Oct., 1880	J. S. Clark.	Hematite	1	East River mines, N. S.		Presented by Prof. Clark
4130	"	"	Fossil plants	Sev.	{ Stil arton coal mines, Pictou Co. N. S.	Carbonifer's	Same { characteristic plants from the N. S. coal
4131	July, 1880	Geol & Nat Hist Sur	Sandstone	3	Taylor's Falls		C. M. Perry, (south of the "dike")
4132	"	"	Orthoceras, section	1	Shore of Star Lake, O. T. Co.	Drift.	Same
4133	"	"	Blue clay	1	Evansville	"	" (50 feet below surface)

Specimens Registered in Museum in 1881—*Continued.*

Serial Numbers.	OBTAINED.		NAME.	No. of Specimens.	Locality.	Formation.	Collector and Remarks.
	When.	Whence.					
4134	July, 1880	Geol & Nat Hist Sur	Part of pebble.......	1	Fergus Falls..................	Drift.	C.M.Ferry, (from clay of Fergus Falls)
4136	"	"	Clay..	1	Spirit Knob, L. Minnetonka...	"	" ....
4136	"	"	Decayed stone and concretions.................	....	Evansville......................	"	" (clay banks)..............
4137	"	"	Fine clay..........................	....	Mouth of Turtle R. Polk Co....	"	A. P. Hendrickson...................
4138	"	N. C D. Taylor.	Copper ores, etc...............................	Indf	Taylor's Falls....	....	N. C. D. Taylor........................
4139	"	Geol & Nat Hist Sur	Clay.......	1	Bed of Miss., T. 145, N. R. 35 W	....	O. E. Garrison, beneath the river deposits, on flood plain [95]........
4140	"	"	Red Quartzite or Sandstone, (conglomerated)..	1	Pokegama Falls..............	Potsdam.	O. E. Garrison, (Upper strata where the arrow like fall begins), [96]....
4141	"	"	" "	1	" "	"	O. E. Garrison, (Upper strata, a little below the apron, 10 feet above water ledge), [97].................
4142	"	"	Reddish sandrock............................	1	" "	"	O. E. Garrison, (Lowest strata visible in the perpendicular walls), [98]................ ....
4143	"	"	Coarse sandstone..........	1	" "	"	O. E Garrison, (Lowest strata visible in the perpendicular walls), [98a]..........................
4144	"	"	Rotted sandstone...........	1	" "	"	O. E. Garrison, (From apron, flooded in high water(, [99]............
4145	"	"	Clay......	1	Lower landing, Pokegama Falls		O. E. Garrison, (From gully on bluff), [101]......................
4146	"	"	Coarse Quartzyte.............	1	Lower falls Prairie R. sec. 34, T. 56, R. 26..................	"	O. E. Garrison, (In river bed, covered in high water; cracked in all directions), [102].................
4147	"	"	Gray and pinkish quartzyte....................	1	Lower falls Prairie R., sec. 34, T. 56, R. 26..............	"	O. E. Garrison, [103], (Near [102], but not flooded..................
4148	"	"	Red quartzyte............................	1	Prairie River Falls............	"	O. E. Garrison, [104], (Highest point of exposure, and west of the trail from lower landing to lower lake.
4149	"	"	"	1	" "	"	O. E. Garrison, [106], (From a loose scale, but on exposure same as 104.)

4150	July, 1880	Geol & Nat Hist Sur	Rod Quartzyte	....	Prairie R. Falls, sec. 33. T. 56, N. R. 25 W	Potsdam.	O. E. Garrison, [106], (Near the middle of the exposure, near the trail around the upper falls)
4151	"	"	Gray Gneiss	2	Upper Falls of Prairie River		O. E. Garrison, [107], (Near the highest exposure, east of the trail around the falls
4152	"	"	Coarse Granite	1	" "	Potsdam.	O. E. Garrison, []08], (Highest part of rock, east of the trail around the falls
4153	"	"	"	1	" "	"	O. E Garrison, [109], (From a fissure in the rock near the river, east of the trail around the falls
4154	"	"	"	1	" "	"	O. E. Garrison, [110], (From a fissure near 109)
4155	"	"	Gneiss	1	" "		O. E. Garrison, [111], (Near head of the falls
4156	"	"	Iron Ore	1	Left bank of Prairie River Falls		O. E. Garrison, [112], (From a pit dug in prospecting many years ago
4157	"	"	Iron Ore	1	Right " " "		O. E. Garrison, [113], (Near landing and trail around lower falls
4158	"	"	"	1	Prairie River Falls		O. E. Garrison, [114], (From a pit near 112)
4159	"	"	Sandstone	1	" "		O. E. Garrison, [115] (From a loose fragment in trail around lower falls)
4160	"	"	Clay	1	On Miss. R. below Prairie R		O. E. Garrison, [116], (From a bluff)
4161	April, 1880	J. B. Gilfillan.	Section of large (concretion?)	1	Minneapolis	Trenton.	J. B. Gilfillan
4162	1880	P. H. Mell, Jr.	Lircon	3	N. Carolina		P. H. Mell. Jr. By exchange
4163	"	"	Talc. "soapstone"	1	Bartow Co., Ga.		" "
4164	"	"	Silicious Tufa	2	Flint River, Ga		" "
4165	"	"	Itacolumite	3	Mitchell Co., N. C		" "
4166	"	"	Clipiasters	3	Thomas Co., Ga.		" "
4167	"	"	Blue Corundum	1	Towns Co., Ga.		" "
4168	"	"	Garnets in Chlorite	2	Clay Co., Ala.		" "
4169	"	"	Impure Agate	1	Flint River, Ga.		" "
4170	"	"	Corundum in Zincite	1	Coosa Co., Ala.		" "
4171	"	"	Albite	1	Clay Co., N. C.		" "
4172	"	"	Brown Corundum and Magnetite	6	Coosa Co., Ala.		" "
4173	"	"	Grey Corundum and Tourmaline	3	Towns Co., Ga.		" "
4174	"	"	Nodules, sup'sd to be chloride f'm corundum v'n	5	Coosa Co., Ala.		" "
4175	"	"	Pink Corundum	8	Towns Co., Ga.		" " (from trap dike)
4176	"	"	Tantalite	3	Taleaposa Co., Ala.		" " "
4177	"	"	Essonite	6	N. Africa diamond fields		" " "
4178	"	Geol & Nat Hist Sur	Section of Orthocerata	3	Vermont, Blk. R. limestone		S. F Heath
4179	"	"	Artesian-well borings, limestone 80 ft	2	Hastings, Da. Co.		Bored by W. E. Swan. I (to 80 ft)
4180	"	"	" " sandrock 15 ft	1	"		By same, II (to 95 ft)
4181	"	"	" " limestone 12 ft	1	"		" III (to 107 ft)
4182	"	"	" " sandrock 8 ft	1	"		" IV (No. 1 at 102 ft), no water
4183	"	"	" " " 10 ft	1	"		" IV (No. 2 at 122 ft), "
4184	"	"	" " " 10 ft	1	"		" IV (No. 3 at 132 ft), "

Specimens Registered in Museum in 1881—*Continued.*

Serial Numbers.	OBTAINED.		NAME.	No. of Specimens.	Locality.	Formation.	Collector and Remarks.
	When.	Whence.					
4185	1880	Geol & Nat Hist Sur	Artesian-well borings, sandrock, 20 ft	1	Hastings, Da. Co		Bor'd by W.E Swan IV, (No. 4 at 152 ft) No water
4186	"	"	" " " 20 ft	1	"		By same, IV, (No. 5 at 172 ft)
4187	"	"	" " " 10 ft	1	"		" IV, (No. 6 at 182 ft)
4188	"	"	" " " 10 ft	1	"		" IV, (No. 7 at 192 ft)
4189	"	"	" " " 10 ft	1	"		" IV, (No. 8 at 202 ft)
4190	"	"	" " sandy shale 25 ft	1	"		" V, (to 227 ft)
4191	"	"	" " gray shale 43 ft	1	"		" VI, (to 270 ft)
4192	"	"	" " green shale 20 feet	1	"		" VII, (No. 1 at 290 ft)
4193	"	"	" " " 110 ft	1	"		" VII. (No. 2 at 400 ft)
4194	"	"	" " sandy shale 15 ft	1	"		" VIII, (to 415 ft)
4195	"	"	" " sandrock 20 ft	1	"		" IX, (No. 1 to 435 ft)
4196	"	"	" " " "	1	"		" IX, (No. 2 to 455 ft)
4197	"	"	" " " "	1	"		" 1st flow, IX, (No. 3 to 475 ft)
4198	"	"	" " limestone 20 ft	1	"		" X, (to 495 ft)
4199	"	"	" " blue shale 70 ft	1	"		" XI, (to 565 ft)
4200	"	"	" " green shale 20 ft	1	"		" XII, (to 585 ft)
4201	"	"	" " limestone 5 ft	1	"		" XIII, (to 590 ft)
4202	"	"	" " sandrock 5 ft	1	"		" XIV, 2d flow, (No. 1 to 595 ft)
4203	"	"	" " " 25 ft	1	"		" XIV, (No. 2 to 620 ft)
4204	"	"	" " " 10 ft	1	"		" XIV, (No. 3 to 630 ft)
4205	"	"	" " " 10 ft	1	"		" XIV, (No. 4 to 640 ft)
4206	"	"	" " " 10 ft	1	"		" XIV, (No. 5 to 650 ft)
4207	"	"	" " " 5 ft	1	"		" XIV, (No. 6 to 655 ft)
4208	"	"	" " " 15 ft	1	"		" XIV, (No. 7 to 685 ft)
4209	"	"	" " " 30 ft	1	"		" XIV, (No. 8 to 700 ft)
4210	"	"	" " " 7 ft	1	"		" XIV, (No. 9 to 707 ft)
4211	"	"	" " " 43 ft	1	"		" XIV, (No. 10 to 750 ft)
4212	"	"	" " " 30 ft	1	"		" XIV, (No. 11 to 780 ft)
4213	"	"	" " " 40 ft	1	"		" XIV, (No. 12 to 820 ft)
4214	"	"	" " red sandstone	1	"		" XV, (No. 1 to 835 ft)
4215	"	"	" " "	1	"		" XV, (No. 2 to 850 ft)
4216	"	"	" " red shale	1	"		" XV, (No. 3 to 870 ft)

4217	1880	Geol & Nat Hist Sur	Artesian well drillings, red sandrock	1	Hastings, Da. Co		Bored by W E Swan, XV, (No. 4 to 886 ft)
4218	"	"	" " red shale	1	"		By same, XV, (No. 5 to 925 ft
4219	"	"	" " red sandrock	1	"		" XV, (No. 6 to 950 ft)
4220	"	"	" " "	1	"		" XV, (No. 7 to 1,000 ft)
4221	"	"	" " "	1	"		" XV, (No. 8 to 1,050 ft)
4222	"	"	" " "	1	"		" XV, (No. 9 to 1,060 ft)
4223	"	W. D. Hurlburt.	Crinoid joints	7	Barrens of N. Alabama	(?)	Presented by W. D. Hurlburt, lowest limestone, the rotted layers still show strata
4224	"	"	Limonite	1	Olmsted Co	Upper Trenton (?	Presented by W. D. Hurlburt, Drift, cut on Eyota & Chatfield R. R.
4225	"	"	Pentremites	10	Cumberland Mts. E. Tenn.	Carb Sand stone	Presented by W. D. Hurlburt
4226	"	"	"Mountain Limestone," showing crinoids	1	East Tennessee.	Sub. Carb.	" "
4227	"	"	" " " massive coral	2	"	"	" "
4228	"	Mr. Reese.	Fossil wood, showing knot	1	Milk R. Valley, Montana		Presented by Mr. Reese
4229	1879	Geol & Nat Hist Sur	Graphite	Indf	Lake Superior		S. F. Peckham
4230	1880	"	Selenite crystals	"			U. D. Watkins
4231	"	"	Spathic Iron	1	Plymouth, Vt		"
4235	"	"	Vegetable impressions in shales	4	Cleveland, Ohio	Buyhaga shales	" coal, No. 1
4236	"	"	Non-plastic clay	1	Bohaes, Tuscarawas Co., Ohio		"
4237	"	"	Cone in cone	1	Cleveland, Ohio	Buyhaga shales	"
4239	"	"	Shales carbonaceous	sevl	" "	"	"
4240	"	"	Slickinsided coal	1	Brewster bank, Akron, Ohio	"	"
4241	1881	John A. Green.	"Anamosa stone"	1	Stone City, Iowa	Up. Silurian	John A. Green, Champion quarries
4242	May, 1881	Geol & Nat Hist Sur	Tellinomya levata (or fecunda, H)	24	Dubuque, Iowa	Mag. shales	Exchange with Prof. S. Calvin
4243	April, 1881	"	Copper	1	Stearns Co	Drift	O. E. Garrison, cut from a large mass
4244	May, 1881	Regent R. Chute.	Coquina	1	St. Augustine. Fla	Ter. (?)	Presented by Regent Chute
4245	1877	Geol & Nat Hist Sur	Building stone one foot square	1	Pipestone quarry Pipestone Co.	Potsdam	N. H. Winchell
4246	June, 1881	"	Limestone, believed to be hydraulic	2	Four miles north of Mankato	Shakopee	"
4247	"	"	White Clay, believed to be kaolinic	3	" "	Cret (?)	"
4248	"	"	Limestone, showing light blue color	2	Mankato	Shakopee	" Maxfield's quarry, deep seated beds
4249	"	"	Elephant's tooth	1	Near the Rosebud R. Mon	Cret. (?)	Presented by S. Deutsch, (per Col. J. B. Clough)
4250	July, 1881	"	Artesian well drillings, black soil	1	Lake City		Presented by W. E. Swan, (No. 1) 2 ft.
4251	"	"	" " yellow clay	1	"		By same, (No. 2) 42 ft
4252	"	"	" " sand and gravel	1	"		" (No. 3a) 202 ft
4253	"	"	" " gravel from same	1	"		" (No. 3b) 202 ft
4254	"	"	" " "Hardpan"	1	"		" (No. 4) 207 ft
4255	"	"	" " sand	1	"		" (No. 5) 210 ft
4256	"	"	" " sand	1	"		" (No. 6) 220 ft
4257	"	"	" " sand	1	"		" (No. 7) 225 ft
4258	"	"	" " coarse sand	1	"		" (No. 8) 232 ft
4259	"	"	" " sand	1	"		" (No. 9) 290 ft
4260	"	"	" " sand	1	"		" (No. 10) 360 ft
4261	"	"	" " sand	1	"		" (No. 11) 405 ft
4262	"	"	" " sand	1	"		" (No. 12) 412 ft
4263	"	"	" " sand	1	"		" (No. 13) 422 ft

Specimens Registered in Museum in 1881—*Continued.*

Serial Numbers.	OBTAINED.		NAME.	No. of Specimens.	Locality.	Formation.	Collector and Remarks.
	When.	Whence.					
4264	July, 1881	Geol & Nat Hist Sur	Artesian-well drillings, sand	1	Lake City		Presented by W E Swan, (No. 14), 440 ft
4265	"	"	" " sand	1	"		By same, (No. 15), 445 ft
4266	"	"	" " sand	1	"		" (No. 16), 460 ft
4267	"	"	" " sand	1	"		" (No. 17), 495 ft
4268	"	"	" " sand	1	"		" (No. 18), 500 ft
4269	"	"	" " red shale	1	"		" (No. 19), 506 ft
4270	"	"	" " " sand washed from	1	"		" (No. 20a), 525 ft
4271	"	"	" " " unwashed	1	"		" (No. 20b), 525 ft
4272	"	"	" " " sand washed from	1	"		" (No. 21a), 570 ft
4273	"	"	" " " unwashed	1	"		" (No. 21b), 570 ft
4274	"	"	" " "	1	"		" (No. 22), 600 ft
4275	"	"	" " "	1	"		" (No. 23a), 640 ft
4276	"	"	" " " sand washed from	1	"		" (No. 23b), 640 ft
4277	"	"	" " "	1	"		" (No. 24a), 680 ft
4278	"	"	" " "	1	"		" (No. 24b), 680 ft
4279	"	"	" " "	1	"		" (No. 25a), 700 ft
4280	"	"	" " " sand washed from	1	"		" (No. 25b), 700 ft
4281	"	"	" " " "	1	"		" (No. 26a), 730 ft
4282	"	"	" " " "	1	"		" (No. 27a), 773 ft
4283	"	"	" " " "	1	"		" (No. 27b), 773 ft
4284	"	"	" " "	1	"		" (28), 805 ft
4285	"	"	" " "	1	"		" (29), 820 ft
4286	"	"	" " "	1	"		" (26b), 730 ft
4287	"	"	" " black loam	1	Austin		" (1). 2 ft thick
4288	"	"	" " yellow clay	1	"		" (2), 12 ft thick
4289	"	"	" " sand and gravel	1	"		" (3), 20 ft thick,
4290	"	"	" " blue clay	1	"		" (4), 22 ft thick
4291	"	"	" " gray limestone.	1	"		" (5), 44 ft thick
4292	"	"	" " gray shale	1	"		" (6), 16 ft thick
4293	"	"	" " blue limestone	1	"		" (7), 64 ft thick
4294	"	"	" " gray limestone,	1	"		" (8), 80 ft thick
4296	"	"	" " piece of limestone	1	"		" Water rose to within 9 ft of surface, from a crevice, furnishing water at 160 ft

4296	July, 1881	Geol & Nat Hist Sur	Artesian-well drillings, soil	1	Britt, Iowa		Presented by W.E.Swan,(1), 4 ft thick
4297	"	"	" " yellow clay	1	"		By same, (2), 6 ft thick
4298	"	"	" " blue clay	1	"		" (3), 75 "
4299	"	"	" " gravel	1	"		" (4), 25 "
4300	"	"	" " "hard-pan"	1	"		" (5), 14 "
4301	"	"	" " brown limestone	1	"		" (6), 57 "
4302	"	"	" " gray shale	1	"		" (7), 77 "
4303	"	"	" " limestone Mag	1	"		" (8), 298 " in this was water contained in a crevice at 470 ft
4304	"	"	" " brown carb. shale	1	"		" (9), 15 ft thick
4305	"	"	" " light limestone	1	"		" (10), 26 "
4309	"	"	Propidoleptus carinatus, Con	2	Owasco Lake, N. Y	Hamilten	S. G. Williams, by exchange
4310	"	"	Discina lodensis, Vanuxem	2	Cayuga Lake, N. Y	Genesec	" "
4311	"	"	Atrypa reticularis, var. prisca	2	Wingfield, Herk Co., N. Y	Cornif	" "
4312	"	"	Lycopodites vanuxemi. Dawson	1	Groton, N. Y	Chemung	" " (1 m N E)
4313	"	"	Strophomena rhomboidalis	1	Wingfield, Herk Co., N. Y,	Cornif	" "
4314	"	"	Pteriuea avicula glabella Con	2	Owasco Lake, N. Y	Hamilton	" "
4315	"	"	Tentaculites fissurella	1	Wingfield, Herke Co., N. Y	Marcellies	" "
4316	June, 1881	"	Sandstone		Sec. 8, Middleville, Wright Co	Cret ?	C. L. Herrick, rises 2 ft above Crow R
4317	"	"	"		Sec. 13, (?) Frankfort, "	"	" both sides Crow R
4318	"	"	Marble	1	Scranton, Vt	"	N. H. Winchell
4319	Aug., 1881	"	Hudson river shale	1	Cook's quarry, Minneapolis	Hudson R	"
4320	July, 1881	H. H. Sibley	Fossils	22	Mouth of Cheyenne R., Black Hills, Da		Presented by Gen. H. H. Sibley
4321	"	"	Petrified wood	1	Dakota		" "
4322	June, 1881	Geol & Nat Hist Sur	"Molding sand,"		Middleville, Wright Co	Drift	C. L. Herrick, bank of Crow river
4323	"	"	Drift, characteristic of Wright Co		Kingstone, Wright Co	"	" banks of Crow R. 25-30 ft
4324	"	"	Sand overlying No. 4316		Sec. 8, Middleville, Wright Co	"	" "
4325	"	"	Rib of Manatus	1	Coosau, S. C		Prof.C.U.Shepard,obtained by exch'ge
4326	July, 1881	Geol. Survey	Tooth of horse	1	"		" "
4327	"	"	Charcharadon giganteus (tooth)	1	"		" "
4328	"	"	Charcharodon angustidens (tooth)	1	"		" "
4329	"	"	Charcharodon megalodon, etc., (teeth)	20			" "
4330	"	"	Phosphatic nodules	4	Coosau and Ashley R's, S. C		" "
4331	"	"	Fluorite (emerald green,) with titanite amphibole, etc		Ottawa Canada		" "
4332	"	"	Calcite, (red)		Grattan, Canada		" "
4333	"	"	Deweylite, with chrysotile	3	Templeton, Can		" "
4334	"	"	Zircon	Indf	Henderson Co. N. C		" "
4335	"	"	Kuebilite	2	Cumberland, R. I,		" "
4336	"	"	Danburite	3	Russel, N. Y		" "
4337	"	"	Crocoite	1	Beresof, Russia		" "
4338	"	"	Apatite	2	Templeton, Can		" "
4339	"	"	Apatite crystals	Indf	" "		" "
4340	"	"	Apatite crystals, (reddish)	4	Gratton, Can		" "
4341	"	"	Apatite	1	"		" "
4342	"	"	Apatite	1	Templeton, Can		" "
4343	"	"	Apatite, granular	1	"		" "
4344	"	"	Amphibolite and augite	2	"		" "
4345	"	"	Augite	1	"		" "

Specimens Registered in Museum in 1881—*Continued.*

Serial Numbers.	OBTAINED.		NAME.	No. of Specimens.	Locality.	Formation.	Collector and Remarks.
	When.	Whence					
4346	July, 1881	Geol. Survey	Augite	1	Jefferson Co., N. Y		Prof. C. U. Shepard, obtained by exch'ge
4347	"	"	Pelhamite	1	Pelham		" "
4348	"	"	Tourmaline, (brown,) and augite, (white)	1	Governeur, N. Y		" "
4349	"	"	Lederite and augite, (black)	1	Gratton, Can		" "
4350	"	"	Pagodite	1	Washington, Ga		" "
4351	"	"	Apatite	1	Ural mountains		" "
4352	"	"	Margarodite	1	Trumbull, Conn		" "
4353	"	"	Lederite	1	Grattan, Canada		" "
4354	"	"	Rutile	1	Graves Mt, Ga		" "
4355	"	"	Chrysotile in Deweylite	1	Templeton, Can		" "
4356	"	"	Oligoclase	1	Georgia		" "
4357	"	"	Deweylite	2	Templeton, Can		" "
4358	"	"	Fossil wood	2	Coosau, South Alabama		" "
4359	"	"	Idocrase	2	Templeton, Can		" "
4360	"	"	Tremolite in Dolomite	1	Lee, Mass		" "
4361	"	"	Kaolinite	1	Richmond Co., Ga		" "
4362	"	"	Amphibolite	1	Templeton Can		" "
4363	"	"	Vanuxemite	1	Sparta, N. Y		" "
4364	"	"	Pyrosmalite	1	Nordmark, Wermland		" "
4365	"	"	Augite	1	Ottawa Canada		" "
4366	"	"	Lederite, (Titanite)	2	Grattan, Canada		" "
4367	"	"	Pyrophyllite	5	Graves Mt, Ga		" "
4368	"	"	Cuprite mixed with sulphurets of copper	1	Siberia		" "
4369	"	"	Menilite with Glossecollite	1	Coosan, S. C.		" "
4370	"	"	Lazulite	4	Graves Mt., Ga		" "
4371	"	"	Topaz and margarodite	1	Trumbull, Conn		" "
4372	"	"	Amphibolite and calcite (red and blue)	1	Templeton, Can		" "
4373	"	"	Wilsonite	2	"		" "
4374	"	"	Anorthite, (Indianite) with specky Allanite	1	Pelham, Mass		" "
4375	"	"	Rutile	1	Graves Mt., Ga		" "
4376	"	"	Titanite	1	Arendal, Norway		" "
4377	"	"	Apatite in calcite, (red)	1	Gruttan, Can		" "
4378	"	"	Calcite, (red) with apatite and biotite	1	"		" "

4379	July, 1881	Geol. Survey	Orthoclase crystals with albite	1	Huntington, Mass		Prof. C. U. Shepard, obtained by exch'ge
4380	“	“	Asbestoid Bronzite	1	Pelham, Mass		“ “
4381	“	“	Tremolite	1	Cherokee Co., N. C		“ “
4382	“	“	Apatite	2	Grattan, Can		“ “
4383	“	“	Phosph	2	Spain		“ “
4384	“	“	Augite Chromiferous	1	Wakefield, Conn		“ “
4385	“	“	Phosphatic nodules, “land phosphate.”	1	Ashley Region, S. C		“ “
4386	“	“	Pyrula carica	2	Young's Id., S. C	P'st Pliocene	“ “
4387	“	“	Oliva litorata	7	“	“	“ “
4388	“	“	Natica duplicata	Indf	“	“	“ “
4389	“	“	Artemis concentrica	3	“	“	“ “
4390	“	“	Arca incongrua	5	“	“	“ “
4391	“	“	Lutrasia canaliculata	6	“	“	“ “
4392	“	“	Terebra acuta	Indf	“	“	“ “
4393	“	“	Mactra suniles	1	“	“	“ “
4394	“	“	Sigareius perspectivus	1	“	“	“ “
4395	“	“	Scalaria	1	“	“	“ “
4396	Oct., 1881	“	Squared slab of roofing slate	1	Near Knife Falls	Huronian	N. H. Winchell, (12 in by 26 in by 2 in)
4397	“	“	Hudson River limestone	2	Clinton Falls	Hud R	“ (taken for building stone tests
4398	“	“	Blue sandrock, (building stone.)	2	Dresbach	St. Croix	“
4399	“	“	Buff sandrock. (building stone.)	1	Dakota	“	“
4400	“	“	Yellow sandrock, (building stone.)	16	Near Fort Snelling	“	“
4401	Aug., 1878	“	Basaltic columns, (triangular.)	3	Grand Marais		C. W. Hall, Fr'm the natural breakwater, Grand Marias harbor
4402	“	“	“ (four-sided.)	4	“		“
4403	“	“	“ (five-sided.)	1	“		“
4404	“	“	“ (six-sided.)	1	“		“
4405	Oct., 1881	C. W. Hall	Quartzyte	2	Devil's Lake, Wis	Potsdam	C. W. Hall, (from cut on C. & N. W. Ry.)
4406	July, 1881	C. M. Terry	Kaolin	3	Aiken, S. C		C. M. Terry presented
4407	Nov., 1881	C. U. Shepard	Meteoric stone, (fell Oct. 13, 1879,) wt 1.75 grains	1	Soko Banjia, Servia		Prof. Shephard, obtained by exch'ge
4408	“	“	“ (fell May 22, 1808,) wt 1.48 “	2	Stannern		“ “
4409	“	“	“ (fell 1871.) wt 1.4 “	2	Searsport, Me		“ “
4410	“	“	“ wt 1.35 “	1	Little Piney, Mo		“ “
4411	“	“	“ wt 2.1 “	1	Milena		“ “
4412	“	“	Meteoric Iron wt 14.55 “	1	Disco, Baffins Bay		“ “
4413	“	“	“ (fragments) wt 2.52 “	Indf	Sarepta		“ “
4414	“	“	“ wt 0.63 “	1	Union Co., Ga		“ “
4415	“	“	“ (fell 1875) wt 18.35 “	1	Santa Catarina, Brazil		“ “
4416	“	“	“ wt 4.55 “	1	Bitburg, Prussia		“ “
4417	“	“	“ wt 24.97 “	1	Auburn, Ala		“ “
4418	“	“	“ wt 17.5 “	1	Lexington, S. C		“ “
4419	“	“	“ wt 8.4 “	1	Durango		“ “
4420	“	“	“ wt 1.98 “	1	Ivanpah, Cal		“ “
4421	“	“	“ wt 2.3 “	7	“		“ “
4423	Oct, 1881	Geol. Survey	Pink Quartzyte	1	Sioux Falls, Dak	Potsdam	N. H. Winchell
4424	May, 1881	“	Sassolite	1			“
4425	“	“	Sandstone with lingulae and galenite	12	Dresbach	St. Croix	“ (Dresbach's Mine)
4426	Sept, 1881	“	Pressed brick, red	1	Red Wing		

Specimens Registered in Museum in 1881—*Continued.*

Serial Numbers.	OBTAINED.		NAME.	No. of Specimens.	Locality.	Formation.	Collector and Remarks.
	When.	Whence.					
4428	Sept., 1881	Geol. Survey......	Fine-grained, gray granite......................	1	S. E. ¼ Sec. 34, 43, 23, Aitkin Co	....	Warren Upham....................
4429	“	“	Granite, light-colored.........................	1	Sec. 4, 42, 23, Kanabec Co......	....	“ ½m N of the mouth of Cowan's Cr........
4430	“	“	Dark Mica-schist..............................	1	“ “	....	“ ¾m N of the mouth of Cowan's Cr.........
4431	“	“	White quartzose granite......................	1	Sec. 9, 42, 23, “	....	“ Typical rock at the "Jaws of the Upper Falls," Snake River
4432	“	“	Coarse red granite, (superficially red)..........	1	“ “	....	“ "Jaws of the Upper Falls" of Snake R..
4433	“	“	Gneiss..	1	“ “	....	“ 30 rods S of "Upper Falls" of Snake River...... ....
4434	“	“	Homogeneous, fine, gray, granite................	1	“ “	....	“ 60 rods S of "Upper Falls" of Snake River.... ....
4435	“	“	Red granite, enclosing a micaceous mass.......	1	Sec. 16, T. 42, 23 “	....	“ 60 rods above head of Lower Falls........
4436	“	“	Fine, homogeneous, white granite..............	2	Sec. 15 & 16, T 42,23 Kanabec Co	....	“ Upper part of Lower Falls of River, the prevailing rock here
4437	“	“	Mica schist....................................	3	“ “	....	“ Cent'l p't Lower Falls
4438	“	“	Hard mica schist, attached to dark gneiss......	1	“ “	....	“ “ “
4439	“	“	Fragile mica schist............................	1	“ “	....	“ “ “
4440	“	“	Quartz, vein in mica schist......................	1	“ “	....	“ Lower Falls, Snake R
4441	“	“	Redish-gray granite..........................	3	S.E. ¼ Sec. 30, T. 40, 24, “	....	“ At Ann Lake dam....
4442	“	“	“ “	2	S.W. ¼ Sec. 29, T. 40, 24, “	....	“ At Roll dam, Ann R
4443	“	“	Dark gneiss, (red feldspar)......................	4	N. W. ¼ Sec. 24, T. 41, 31, Morrison Co....................	....	“ BellePr'ie, MorrisonC O
4444	“	“	Coarse gneiss, (white feldspar).................	9	Sec. 21, T. 41, 29, Morrison Co..	....	“ "Granite City".......

4445	Sept., 1881	Geol. Survey......	Fine, red granite..............................	5	S.E.¼ Sec.35,T.41,29,MorrisonCo	....	Warren Upham,	N. end big dam, Hillman brook.......
4446	"	"	Coarse gneiss, (white feldspar and biotite)......	2	" "	....	"	S end big dam, Hillman brook.........
4447	"	"	Gneiss, (white feldspar and biotite)............	2	N. W.¼ Sec. 18, 40, 29 "	....	"	N end lower Roll dam, Hillman brook.....
4448	"	"	Micaceous granite, (white feldspar and biotite)	2	N. E. ¼ Sec. 9, 40, 30, Pierz, Morrison Co..............	....	"	1 m E of Rich Prairie, E side Skunk R.. ..
4449	"	"	Micaceous gneiss, " "	2	" "	....	"	" "
4450	"	"	Dark micaceous granite, (gneissic).......... ..	5	Sec's 18 and 7, T. 41, 30, Morrison Co.....................	....	"	1 m. W. of Platt R....
4451	"	"	Coarse, gray granite, (gneissic)...............	4	S. W. ¼ Sec. 17, T. 40, 30, Morrison Co......	....	"	....
4452	"	"	Fine, gray granite, (homogeneous)............	17	S. E ¼ Sec. 18, T. 40, 31, Morrison Co......................	... .	"	¼ m. S. of Fish Lake
4453	"	"	Coarse, red syenite.........................	4	N. W. ¼ Sec. 18, T. 39, 30, Morrison Co................	....	"	Buckman twp.......
4454	"	"	"	1	Sec. 29, T. 38, 27, Mille Lacs Co	....	"	W. br. of Rum R.....
4455	"	"	"	2	" "	....	"	W. br. Rum R ¼ m.N. W. from last.......
4456	"	"	"	2	Sec. 19, T. 38, 27, "	....	"	Stony Brook dam, W. br. Rum R..........
4457	"	"	Fine, red syenite, (dyke-like).................	1	Sec. 24, T. 38, 28, Benton Co....	....	"	W. br. Rum River....
4458	"	"	Coarse, red syenite, (50 rods W. of last).........	2	" "	....	"	W. br. Rum R., 25 rods W. of Roll dam.....
4459	"	"	Fine, red granulite, (compact)................	2	N. E. ¼ N. W. ¼ Sec. 20, 38, 28, Benton Co.............	....	"	N. of the trap dyke...
4460	"	"	Fine, dark trap, (from a dyke)................	2	" "	....	"	....
4461	"	"	Coarse, red syenite..........................	2	" "	....	"	S. of the trap dyke....
4462	"	"	Porhyritic, red syenite....	4	S. E. ¼ S. W. ¼ Sec. 18, 37, 29 Benton Co...................	....	"	Clement Teller's land
4463	"	"	Coarse, micaceous syenite, (white feldspar)....	2	N. E. ¼ Sec. 35, 37, 31. Benton Co	....	"	Used in Bismarck b'ge
4464	"	"	Fine, light granite............................	2	" "	....	"	" "
4465	"	"	Coarse, red syenite..........................	2	" "	....	"	" ".
4466	"	"	Micaceous syenite, (gray).....................	4	Sauk Rapids, Benton Co........	....	"	Collins, Mitchell & Searle..............
4467	"	"	" (showing lumbs of dark)...	1	" "	....	"	" "
4468	"	"	Reddish granite, (Porphyritic with albite?).....	4	1 m. E. Sauk Rapids, Benton Co	....	"	25r's S. Gilmanton road
4469	"	"	Coarse, red syenite...........................	4	N. ½ Sec. 11, " "	....	"	Quarry of Collins, Mitchell & Searle...
4470	"	"	Coarse, reddish-gray syenite..................	4	" " "	....	"	From the deeper parts of quarry of Collins, Mitchell & Searle...
4471	"	"	Coarse, red syenite, (has some mica)...........	2	S.E.¼ Sec.11, " "	....	"	Wm. Kout's..........
4472	"	"	" " ,..........	3	N.W.¼ Sec.18, " "	....	"	E. D. Learned estate
4473	"	"	Dark, fine, trap-rock; dyke 1 ft wide..........	3	" " "	....	"	Cuts No. 4472, E. D. Learned estate.....
4474	"	"	Fine, mixed, (reddish-gray) syenite...........	4	S.W.¼ Sec.13, " "	....	"	R. W. Leyerly.......
4475	"	"	Fine, red syneite...............	4	N.E.¼ Sec.14, " "	....	"	Joseph Moody........

Specimens Registered in Museum in 1881—*Continued.*

Serial Numbers.	OBTAINED.		NAME.	No. of Specimens.	Locality.	Formation.	Collector and Remarks.	
	When.	Whence.						
4476	Sept., 1881	Geol. Survey	Coarse, red syenite	1	N. E. ¼ Sec 14, Sauk Rapids, Benton Co		Warren Upham, Joseph Moody	
4477	"	"	Fine, gray syenite	2	2 m. S. E. of St. Cloud bridge		"	Quarry of Breen & Young
4478	"	"	" (hammered face)	1	" "		"	"
4479	"	"	Red syenite	6	" "		"	"
4480	"	"	Porphyritic, coarse, gray syenite	4	20 rods S. of Sauk Rapids bridge		"	W. side of Miss River.
4481	"	"	Gray syenite	4	1 m. S. of St. Cloud bridge		"	"
4482	"	"	Gray syenite, (reddish)	4	S. W. ¼ Sec. 20, St. Cloud		"	Nicholas Scheuer
4483	"	"	Coarse, red syenite	2	" "		"	Matthias Leine
4484	"	"	Gray syenite	4	N. E. ¼ Sec. 28 "		"	Jacob Streitz
4485	"	"	Reddish-gray, fine syenite	4	N. W. ¼ Sec. 28, "		"	Louis Hohmann
4486	"	"	" "	4	N. E. ¼ Sec 29, "		"	Fred Hartman
4487	"	"	Coarse, red syenite	4	" "		"	"
4488	"	"	Fine, pink syenite	3	Sec. 7, N E. ¼, Le Sauk, Stearns Co		"	
4489	"	"	Coarse, red syenite	1	Melrose, Stearns Co		"	Ed Clark's mill is founded on this
4490	"	"	Dark dioryte, (6 feet below surface)	4	W. side Melrose, Stearns Co.		"	W. H. Rothaermel's well
4491	"	"	Coarse, Pink syenite,	1	Sauk Center, Stearns Co		"	¼ m S. E. d'p't, S side Ry
4492	"	"	Fine, pink syenite	1	" "		"	"
4493	"	"	Fine, pink syenite, including mass of mica schist	1	" "		"	"
4494	"	"	Red syenite	1	" "		"	"
4495	"	"	Dark dioryte, (N. W. from last)	2	" "		"	"
4496	"	"	Dark dioryte	1	" "		"	From a well at Barnum's Block
4497	"	"	Pink syenite ? (containing a green mineral)	1	Sec. 17 & 18, Ashley, Stearns Co		"	
4498	"	"	Greenish syenite ?	8	" "		"	Contains more of the green mineral
4499	"	"	Green syenite ?	1	" "		"	Contains much of the green mineral
4500	"	"	Coarse, feldespathic, white syenite	1	" "		"	Contains some of the green mineral

4501	Sept., 1881	Geol. Survey	Gray syenite	9	N. E. ¼ Sec. 15, 131, 33, Todd Co		Warren Upham	
4502	"	"	Gray syenite, showing green veins	2	" "		"	
4503	"	"	Gray syenite	4	N. E. ¼ Sec. 28, 134, 32, Cass Co.		"	5 m. N. W. from Motley
4504	"	"	Micaceous syenite	4	" "		"	"
4505	"	"	Dark traprock	4	" "		"	Cutting the last
4506	"	"	Gray, hard slaty quartzyte	2	1 m. N. of Moose L. Station, Carleton Co.		"	Much jointed into rhombic masses
4507	"	"	Hydro-mica schist	7	½ m S. S. W. Moose Lake Sta., Carelton Co.		"	
4508	"	"	Traprock in schist	2	½ m. W. of Moose Lake Station, Carleton Co.		"	
4509	"	"	White quartz in Hidro-mica schist	2	½ m. S. S. W. Moose Lake Station, Carleton Co.		"	
4510	"	"	Hardened gray quartzyte, semi-crystalline	1	Little Falls, Morrison Co.		"	4 rds N. of E. end ferry
4511	"	"	White quartz in vein 1 ft wide	1	" "		"	6 "
4512	"	"	Fine-grained, staurolitic mica slate	10	" "		"	E. shore, at falls dip, 15° N. W.
4513	"	"	Mica slate, (shows sedimentation)	1	" "		"	"
4514	"	"	Granetiferous fissile, mica slate	3	" "		"	
4515	"	"	Mica schist, (fine)	4	" "		"	
4516	"	"	Dioryte, (coarse)	1	" "		"	At "the point"
4517	"	"	Gray, fine, semi-crystalline, slaty rock	5	N. E. ¼ Sec. 7, T. 130, 30, Morrison Co.		"	Finely micaceous but not slaty
4518	"	"	" "	1	" "		"	Finely micaceous, (pyritiferous)
4519	"	"	Fine, mica slate	6	Near the mouth of Little Elk R.		"	Shows sedimentation.
4520	"	"	White quartz, (in slate)	1	" "		"	
4521	"	"	Micaceous dark dioryte	3	N. E. ¼ Sec. 13. T. 129, 30, Morrison Co.		"	W. of Little Falls
4522	"	"	" "	2	" "		"	" (light)
4523	"	"	" "	1	" "		"	" (lighter)
4524	"	"	" "	2	" "		"	" (lightest)
4525	"	"	Porphyritic, micaceous, hornblende rock	2	" "		"	W. of Little Falls
4526	"	"	Micaceous dioryte, (fine)	1	" "		"	Contains a decaying green mineral
4527	"	"	Mica schist, (with staurolite)	5	Pike Rapids, Morrison Co.		"	
4528	"	"	" "	2	N. E. ¼ 32, T. 128, 29, Morrison Co.		"	Land of C. Gilpatrick.
4529	"	"	Dark compact, (chrysolite bearing?) rock	4	S. E. ¼ 32, T. 128 29, "		"	Allen Blanchard
4530	"	"	Staurolitic mica schist, (coarse)	6	Sec's 17 & 18, Bellevue "		"	E. shore Miss. R., (I. P. Lambert
4531	"	"	Fine, mica slate	6	S. E. ¼ Sec. 4, T. 128, 30, "		"	At Ledoux bridge
4532	"	"	Dark, compact pyritiferous rock, (Dioryte?)	2	Sec. 34, T. 133, 32, Todd Co.		"	Mouth Fish trap br'k.
4533	"	"	" " "	1	" "		"	½ m. above mouth of Fish trap brook
4534	"	"	Mica schist, (finely garnetiferous?)	1	Sec. 34, T. 133, 32, "		"	Mouth Fish trap br'k.
4535	Oct., 1881	"	Rotting amydaloidal trap	2	Sec. 22, T. 41, 20, Pine Co.	Cupriferous	"	Northern outcrop
4536	"	"	" "	3	" "	"	"	Southern outcrop
4537	"	"	Copper strained rock	2	S. part Sec 32, T. 40, 19, Pine Co.	"	"	At E bow of Kettle R.
4538 a	"	"	Coarse spar, (carb lime)	2	" "	"	"	"
4538 b	"	"	Laminated pearl spar, (carb lime)	12	" "	"	"	"
4539	"	"	Siliceous nodule, (parti colored)	1	N. W. ¼ Sec. 4, T. 39, 19, Pine Co.	"	"	

Specimens Registered in Museum in 1881—*Continued.*

Serial Numbers.	OBTAINED.		NAME.	No. of Specimens.	Locality.	Formation.	Collector and Remarks.	
	When.	Whence.						
4540	Oct., 1881	Geol. Survey......	Melaphyr....................................	1	N. W. ¼ Sec. 4, T. 39, 19, Pine Co.	Cupriferous	Warren Upham,	W. side of Kettle R..
4541	"	"	Fine, trap-rock..............................	1	Sec. 17, T. 39, 19, Pine Co.......	"	"	S. end of Big Island..
4542	"	"	"	2	N. W. ¼ Sec. 29, 39, 19, Pine Co	"	"	W. shore St. Croix R..
4543	"	"	Core of diamond drill, (trap)................	1	S. W. ¼, N. W. ¼ Sec. 25, 39, 21, Pine Co................	"	"	Chengwatona Mining Co.................
4544	"	"	From 50 ft. vein, (said to bear copper)..........	1	" "	"	"	"
4545	"	"	Calc spar in trap-rock........................	4	" "	"	"	"
4546	"	"	Greenish trap, with calc spar...................	3	" "	"	"	"
4547	"	"	Green amydagloidal trap, (has Thalite)........	2	" "	"	"	"
4548	"	"	" " "	2	" "	"	"	"
4549	"	"	Trap-rock, with spar crystals.................	2	" "	"	"	"
4550	"	"	Calcite crystals..............................	2	" "	"	"	Eugene L. Wilcox....
4551	"	"	Red conglomerate, (3d belt)..................	2	½ m. E of Chengwatona........	"	"	Strike N. 15°, E. dip 70°, S. 75°, E 30 ft thik
4552	"	"	Pinkish sandstone............................	2	S. part Sec, 34, T. 43, 20, Pine Co	St. Croix.	"	Ravine W. of Kettle R.
4553	"	"	Coarse, pinkish sandstone.....................	3	S. part Sec. 15, T. 42, 20, "	"	"	Brink of Lower Falls, Kettle R............
4554	"	"	Coarse gritstone..............................	1	½ m. S. of mouth Grindstone R..	"	"	W. side of Kettle R...
4555	"	"	White sandstone..............................	1	S. E. ¼ Sec. 30, 39, 19, (Wis.)....	"	"	E. of most south'n of "Thousand Islands.'
4556	"	"	Argillaceous, red sandstone..................	1	" "	"	"	"
4557	"	"	White sandstone..............................	2	N. E. ¼ Sec. 36, T. 39, 20, Pine Co	"	"	Used for court house found'n, Grantsburg
4558	"	"	Red sandstone, (with pebbles)..................	4	N. part Sec. 23, T. 42, 23, Kenabec Co......................	Potsdam.	"	E. bank of Snake R...
4559	"	"	" (with coarse pebbles)...........	3	" "	"	"	" "
4560	"	"	" (with dark and light spots).....	1	" "	"	"	" "
4561	"	"	Calcareous, concretionary shale, (gray)..	4	Two Rivers, Morrison Co.......	Cretaceous.	"	W. shore Miss. R. 25 rods N. of mouth of main two rivers....
4562	"	"	Ferruginous, concretionary shale, (spongy)... .	1	" "	"	"	" "
4563	"	"	" " " (compact)...	1	" "	"	"	" "

4564	Oct., 1881	Geol. Survey	Lignitic clay	4	Two Rivers, Morrison Co.	Cretaceous.	War'n Upham	S. E. side main two rivers, 1-10 m. above mouth
4565	"	"	Lignite lumps in ligaitic clay	1	" "	"	"	" "
4569	"	"	Cone-in-cone	2	" "	"	"	40 rods S. E. of mouth of main two rivers, on W. shore Miss. R.
4570	"	"	Block of bluish clay	1	4 m. E. of Luverne	"	"	From depth of 356 ft. in Rock Co. Farming Co's well
4571	"	"	Pebbles of limestone and shale	10	" "	Drift.	"	From Rock Co. Farming Co's well
4572	"	"	Soil, (thought to be saline)	1	N.W. ¼ Sec. 29, 159. 48, Kittson Co.	"	"	
4573	"	"	Coal, (contained in sand 141-157 ft below surface.	1	N. E. ¼ Sec. 29, 146, 46, Norman Co.	"	"	From Lockhart farm.
4574	"	"	Dark concretionary mass from the soil	1	Sec. 26, 41, 31, Morrison Co.	Drift	"	Found in plowing by J. W. Tanner
4575	"	"	Gray till, above the blue till	1	Sec. 8, T. 127, 29, "	"	"	Young Bro's mill, main two rivers
4576	"	"	Blue till	1	Sec. 8, T. 127, 29, "	"	"	" "
4577	"	"	Gray till	1	St. Francis bridge, Anoka Co.	"	"	E. bank of Rum River.
4578	"	"	Red till, (underlying No. 4577)	1	" " "	"	"	" "
4579	"	"	Red till	1	Sec. 16, T. 121, 24, Wright Co.	"	"	Well of David Bagley, 4.m. E. Monticello.
4580	"	"	Porphyritic hornblende schist	2	Sec. 12, T. 140, 46, Clay Co.	"	"	From a boulder 15 ft x 12 ft. x 5 ft.
4581	"	"	Perforated, water-worn boulder	1	Sec. 7, 129, 29, Morrison Co.	"	"	2. m. N. W. of Little Falls R. J. Lambert's well
4582	"	"	Perched rock, standing on No. 4450	1	Sec. 7, T. 41, 30, "	"	"	Standing on 3 points, (8 ft. in diam.)
4583	"	"	From a boulder of syenite, (like Watab)	1	Sec. 23, T. 42, 23, Kenabec Co.	"	"	On Snake River
4584	"	"	Pebble of conglomerate	1	Mout of Snake River	"	"	
4585	"	"	Pebble of red conglomerate	1	Sec. 6, T. 38, 19, Pine Co.	"	"	Contains red shale
4586	"	"	Compact mottled limestone	1	Sec. 1, Springvale, Isanti Co.	"	"	Found in slabs 10-20 feet long
4587	"	"	Garnetiferous mica schist	4	Sec. 7, Palmer, Sherburne Co.	"	"	From a boulder 26x30 x20 ft.
4588	"	"	Banded, red, jasper pebble	1	Sec. 28, Sauk Rapids	"	"	With other pieces, 1 ft. long
4589	"	"	Pebbles, (crystalline rocks)	10	N. E. ¼ Sec. 26, T. 39, 24, Konabec Co.	"	"	From Fish Lake dam.
4590	"	"	Beach pebbles " "	45	N. W. shore of Mille Lacs, Crow Wing Co.	"	"	Characteristic of shore
4591	"	"	Hollowed pebble, (rounded)	1	" " "	"	"	
4592	"	"	Beach pebbles, (some limestone)	40	N. E. side L. Alexander, Mor. Co.	"	"	Characteristic of shore
4593	"	"	Pebbles from top of Hole in the Day's Bluff	20	N. W. ¼ Sec. 36, T. 41, 32, "	"	"	1¼ m. N. E. Little Falls, no limestone.
4594	"	"	Pebbles, (considerable limestone)	10	Sec. 5, 127, 29, Mor Co.	"	"	1¼ m. N. Two Rivers.
4597	"	"	Concretionary nodule from the Cretaceous	8	Sisseton Agency, Dak	"	Thomas M. Young,	1¼ m. E of school.
4598	"	"	Coarse granite, with tourmaline	1	" "	"	"	On Coteau de prai'e.

Specimens Registered in the Museum in 1881—*Continued.*

Serial Numbers.	OBTAINED.		NAME.	No. of Specimens.	Locality.	Formation.	Collector and Remarks.
	When.	Whence.					
4599	Oct. 1881	Geol. Survey......	Annular section of concretion in pebble........	1	8 m. W. Sisseton Agency, Dak.	Drift.......	Warren Upham, summit of Coteau de Prairie..................
4600	"	"	Fine, yellow clay, (for brick)..................	3	Sec. 26, T. 127, 34, Todd Co ...	"	" E. shore Big Sauk L. 3 m. N. E. of Sauk Center..........
4601	"	"	Dark clay, (laminated and fine)	2	" "	"	" " " "
4602	"	"	Irony, cylindrical concretions.	3	" "	"	" From Pangburn & Moore,s brick clay.................
4603	"	"	Limy, flat concretions.........................	2	" "	"	" " " "
4604	"	"	Fragment of large bone.......................	1	" "	"	" 10 feet below surface in Pangburn & Moore,s brick clay.
4605	"	"	Red brick.....................................	1	2 m. S. Rush City, Chisago Co.	....	" Near R. R., Spooner & Hayden.
4606	"	"	"	1	Sec. 8, T. 133, 32, Todd Co....	....	" H. B. Morrison, 5 m. W. Motley.
4607	"	"	"	1	S. W ¼ Sec. 8 T. 133, 35, Todd Co.	....	" Murray & Allen, 7 m. S. Wadena
4608	"	"	Cream brick..................................	1	Sec. 35, T. 131, 31, Todd Co....	....	" G G. Howe, 1½ m. S. E. Clarissa.
4609	"	"	Well " (cream)...........................	1	" "	....	" " " "
4610	"	"	Pink "	1	Sec. 26, T. 127, 34 "	....	" Pangburn & Moore 3 m N. of Sauk Center..................
4611	"	"	Red "	1	Sec. 22, St. Cloud, Stearns Co..	....	" Greven & Lommel...........
4612	"	"	Cream "	1	Sec. 26, " " ..	....	" Wm. Kruegel................
4613	"	"	" "	1	" " " ..	....	" Frederick Kuhne.............
4614	"	"	Red "	1	Sec. 12, Otsego, Wright Co.....	....	" Ingersoll Bros..............
4615	"	"	Cream "	1	Sec. 20, Grow, Anoka Co.......	....	" Kelsey Bros., 3 m. N. E. Anoka.
4616	"	"	Well " (cream.........................	1	" "	....	" " " "
4617	"	"	Cream "	1	Crookston, Polk Co...........	....	" Norris & McDonald..........
8618	"	"	" "	1	" "	....	" W. A. Nercross.............
4619	"	"	Pink "	1	Breckinridge, Wilkin Co........	....	" Jos. Hall, E. bank Red R.....
4621	Aug, 1881	"	Magnesian limestone..........................	1	Dresbach.......................	St. Law'nce	N. H. Winchell.....................
4628	1880	Exchange.........	Sassolite, lamelated & vitreous, (original No. 1.)	1	Tuscany.	....	In a bottle.........................
4629	"	"	Alunogen, yel'w & conretionary.. (" No. 2.)	1	Ariege, France..	....	....
4630	"	"	Anhydrite, violet, lamellated.... (" No. 3.)	1	"	....	....
4631	"	"	Cerargyrite, on ferruginous barite (" No. 4.)	1	Chili........................	....	With gray copper and haematite.....
4632	"	"	Aragonite prismatic,............. (" No. 5.)	1	Saragossa, Spain...........	....	Crystallized with red quartz.........

4633	1880	Exchange	Bismuth, native, lamellated,...(" No. 6.)	1	Saxony		With arsenical cobalt and arsenate of cobalt
4634	"	"	Smalttie (" No. 7.)	1	Sweden		Fragment of split crystal
4635	"	"	Apatite, white (" No. 8.)	1	Ariege		Concretionary, also brownish and amorphous
4636	"	"	Gypsum in 2 crystalline sheets,(" No. 9.)	1	Montmartre		Reflecting from an incrustation of iron.
4637	"	"	Calcite quartziferous (" No. 12.)	1	Fontainbleau		Sharply rhombohedral, crystals of Fontainbleau
4638	"	"	Freieslebenite, gray (" No. 15.)	1	Hiendelaencina		Amorphous, on gneiss
4639	"	"	Noumeaite, (hyd. Sil. Nickel)..(" No. 17.)	1	Noumea, New Caledona		In a network of concretionary quartz.
4640	"	"	Rhodonite (" No. 18.)	1	Spain		With black sulphate of manganese and quartz
4641	"	"	Sulphur and celestite (" No. 19.)	2	Sicily		Prismatic celestite, (on a bluish marl).
4642	"	"	Bornite, massive (" No. 20.)	1	Chili		Massive, variegated copper
4643	1881	Presented	Gold in quartz	1	Black Hills		Presented by D. A. Locke, (Bengal Tiger Mine
4644	"	By Exchange	Spodumene	1	Sterling, Mass		
4645	"	"	Damourite, (sterling)	1	"		
4646	"	Presented	Slabs with Lingula Melei and Discina Newberryi	3	Berea, O.	Cuy. Shale	C. W. Hall
4647	1877	Geol. Survey	Pebbles of red quartzyte in the quartzyte	1	Pipestone quarry	Potsdam	N. H. Winchell
4668	1881	"	Mass of Selenite crystals, ...(original No. 21.)	1	Lit. Missouri Cantonment	Ter ?	" from Dr. Miller
4676	1878	"	Calcareous geode	1	Dakota Territory	Cretaceous	C. A. Morey
4677	1881	Exchange	Freieslebenite	1	Spain		With barite, drusy quartz and siderite.
4678	"	Geol. Survey	Ripple marked slab of red quartzyte	1	Pipestone quarry	Potsdam	Warren Upham, presented by C. H. Bennett
4679	"	"	Building stone block 1 foot square	1	Stone City, Jones Co., Iowa	Niagara	N. H. Winchell, J. A. Green's quarry.
4680	"	H. S. Peters	Quartz crystals, twinning and overlying	1	Herkimer, Herkimer Co., N. Y.		Presented by H. S. Peters
4681	1880	Presented.	Graphite	1	Heath, Mass		
4682	"	"	Corundum, (Emery)	....	Plymouth, Ct		
4683	"	"	Granite	....	"		
4684	1881	Geol. Survey	Drilling from deep well, Minneapolis in glass tube	....	Minneapolis		Well at Washburn C mill, 205 feet, (C. E. Whelpley)
4685	1880	"	" " " " in a glass tube at Emmettsburg, Iowa	....	Emmetsburg, Iowa		Well is 869 ft., (pres. by W. E. Swan)
4690	1881	J. B. Clough	Elephant's tooth, (15 inches long)	1	Near the Rosebud River, Mon.		Presented by J. B. Clough

ARCHÆOLOGICAL ADDITIONS TO THE MUSEUM IN 1881.

58. Hair of a native of the New Hebrides. Two braids.

59. Two chalcedony arrow points, from near Young Men's Butte. Dakota. Presented by D. P. Jones.

60. One chalcedony spear point, from near Young Men's Butte. Dakota. Presented by D. P. Jones.

61. Two chert arrow points, from near Young Men's Butte. Dakota. Presented by D. P. Jones.

62. One iron arrow-point, from near Young Men's Butte. Dakota. Presented by D. P. Jones.

63. Small stone hammer, withed. From Michigan. Presented by N. H. Winchell.

64. One Indian stirrup, ornamented with white beads. Presented by Col. J. B. Clough.

65. One stone slab, 18 inches in length, apparently used for rubbing and tanning skins. From Dakota. Presented by Col. J. B. Clough.

66. One hickory bow and rawhide case, with rawhide quiver containing seven arrows, five of them with iron points. From Miles City, Montana. Presented by Col. J. B. Clough.

67. An Indian weapon—a quartz pebble surrounded by a rawhide withe which is extended into a handle about three feet long, terminating with a loop for the wrist, and stiffened by a flexible stick. From Miles City, Montana. Presented by Col. J. B. Clough.

68. Small. perfect arrow-point of quartzose, oolitic, or concretionary chert. Found on the University campus by Mr. Fisher, and by him presented to the University Museum.

69. Stone ax, withed, of dark dioryte, found near Albert Lea. Presented by Rev. L. J. Hange.

70. Pangue knife, from the Ogove river, Africa, said to be made of "native iron," enclosed in a snake-skin sheath. Presented by Rev. G. C. Campbell.

71. Loom and three yards of cloth, made from bast fiber, by the *Ivilli*, of the Ogove river, Africa. Presented by Thos. Sinclair, trader on the Ogove river, through Rev. G. C. Campbell.

72. Native dress, worn by the *Ivilli*, and others up the Ogove river, Africa. Presented by Thos. Sinclair, trader, through Rev. G. C. Campbell.

73. Prehistoric Maize, from the old cemetery near Madisonville, Hamilton county, Ohio. Presented by N. H. Winchell.

VI.

GEOLOGICAL NOTES ON MINNESOTA.

BY MR. J. H. KLOOS.

[Translated by N. H. Winchell.]

[NOTE.—These notes were made by Mr. Kloos when serving as Land Agent of the St. Paul & Pacific R. R. and were published in the *Zeitschrift d. Deutschen Geologischen Gesellschaft*, p. 417. They furnish the basis for the subsequent investigations of Streng and Kloos on the crystalline rocks of Minnesota, and contain original observations on the stratigraphical relations of the formations, which differ from those of his predecessors, particularly on the trap and sandstone at Taylor's Falls. They furnish an important historical link between the surveys of Owen, Whittlesey and Eames, and the beginning of the present survey.]

Since the publication of the geological survey carried on under the direction of the American geologist, David Dale Owen, little that is noteworthy has appeared on the geology of Minnesota.

Owen with his assistants, Norwood, Shumard, Whittlesey and eight others, explored the States of Wisconsin, Iowa and Minnesota from 1847 to 1850. In his report to the government of the United States he gives a careful description of the country in respect to its geography and geology, its fauna and flora, as well as its agricultural resources. The 638 pages of his heavy quarto volume contain a vast amount of valuable and exact observations, especially upon the northern part of the district examined, in which even yet exploration is attended usually with great difficulties. A fault of the work is its petty simplicity. The detailed descriptions of many river-valleys, in respect to topography and climatology, render difficult the attainment of a general view of the geology. The description of the crystalline rocks of Minnesota, which in many respects possess a high importance, is faulty. Also the palæontological subjects are not thoroughly treated, and the illustrations of new species published by Owen possess little merit.*

In the year 1866† appeared a little pamphlet on Minnesota by Charles Whittlesey, formerly an assistant of Owen. It is confined almost en-

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*Report of a Geological Survey of Wisconsin, Iowa and Minnesota, by authority of Congress, by David Dale Owen, Philadelphia, 1852.

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†A report of explorations in the mineral regions of Minnesota during the years of 1849, 1859 and 1864, Cleveland, 1866.

tirely to the shores of Lake Superior, and describes the conditions and appearance *in situ* of copper and other metals.

The examinations by the State Geologist, Henry H. Eames, pertain exclusively to those parts of Minnesota in which copper, iron and small quantities of gold are found. In his report for 1866 he confines himself to the description of the occurrence of the useful metals and their ores.[*]

An important paper on the geognosy of southwestern Minnesota was published by Prof. James Hall in the year 1866. His design was to examine the outcrop of coal on the Cottonwood river, one of the important tributaries of the St. Peter, or Minnesota river. Owen with his assistants had been only to the mouth of the Cottonwood. Hall penetrated as far as the celebrated locality where the Indians obtained the "Pipestone" for their pipes.[†] He shows that the coal outcropping there belongs to a younger formation—viz.: the Cretaceous—and assumes the former extension of the Cretaceous as well as the older Mesozoic strata, over that part of Minnesota. At the same time he offers some valuable observations upon the crystalline and metamorphic rocks which appear along the Minnesota river above the mouth of the Cottonwood.[‡]

In the following I have sought to gather together in a comprehensive survey my various notes on different parts of Minnesota; and where it has been necessary to a comprehension of the description, and I was not able personally to make examinations, I have filled them out from earlier observations of others. By means of the map I have aimed rather to aid the reader than to present an exhibition of the geological conditions. The points of observation are in the river valleys, separated by wide tracts covered by drift, and we are not at this time in condition to announce with any certainity the boundaries of the formations. I have gathered much material which is designed for a more careful investigation at some later time, and if time and opportunity are afforded me I aim to treat the separate subjects more thoroughly, which now can only be mentioned briefly.

The State of Minnesota in the geographical center of the continent of North America, lies between 43½ and 49 degrees of north latitude, and between 89½ and 97 degrees of west longitude. This member of the American Union is bounded on the south by Iowa, on the east by Wisconsin, north by the Winnipeg district of British America, and westerly by the territory of Dakota. The area of the state embraces 84,000 English square miles.* A wide wedge, jutting toward the east, extends between Lake Superior and the Rainy lake river which with a succession of small fresh-water lakes forms the boundary line along British America. Therefore Minnesota has a coast line of 160 miles, and a position extremely favorable for trade with the eastern States.

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[*] Report of the State Geologist, Henry H. Eames, on the metalliferous region bordering on Lake Superior. St. Paul, 1866.

[†] Mr. Kloos has fallen into an error in respect to both Owen and Hall. Owen's assistant, Shumard, ascended the Minnesota valley as far as the mouth of the Redwood river, instead of the mouth of the Cottonwood; while Hall only went as far west as Lake Shetek, instead of to the Pipestone quarry. (N. H. W.)

[‡] Notes upon the Geology of some portions of Minnesota, from St. Paul to the western part of the State. By James Hall, Trans. Am. Phil. Soc. vol. XIII, p. 329.

To the geographer, therefore, Minnesota possesses a great intrest, inasmuch as within its borders are found the spring-sources of the great rivers of the American continent. It lies to the north, in the least accessible portion of the United States. Upon the accompanying map of Minnesota can be seen two small lakes, distant but a few miles from each other, known as Itasca and Elbow lakes. In lake Itasca the Mississippi river has its source, and in Elbow lake the Red river of the North. The former flows, as is known, in a southerly direction to the Gulf of Mexico; the other turns with a sharp angle toward the north, unites in the great lake Winnipeg with the waters of the Saskatchewan coming from the Rocky Mountains, and empties with them through the Nelson river into Hudson's Bay. Lastly, the St. Louis and the Rainy lake rivers form the beginning of the extensive fresh-water system which comprises the chain of great lakes, and empties its waters in the Atlantic through the St. Lawrence.†

In Minnesota the banks of the Mississippi and its tributaries, together with the rocky shores of lake Superior, with its many short water courses, and the small lakes in the extreme northern part of the state, afford the only information concerning the age and composition of the earth's crust. As soon as one leaves the river valleys, he finds the older formations covered with heavy rolling hills of sand or clay without organic remains. These later deposits, which form a covering unbroken, except by the river valleys, are a part of the "Drift Formation," of North America. Over an extensive part of this territory it is spread out over the oldest crystalline rocks and on the sedimentary formations, and it extends south to the fortieth degree of north latitude. Even of the drift, in many parts of the state, can an idea of the composition and nature be ascertained only along the separate water-courses, because for days together one can travel without getting sight of a rock or of a hill. Either the grassy, boundless, prairies stretch out in all directions so that the eye cannot discern any tree or shrub, or vast forests, with successive meadows and lakes, cover the country. In the northern part of the state are many impenetrable cedar swamps, and through there it is only possible to pass in winter, when the swamps are frozen.

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*Wherever in this work miles are mentioned, the English Statute miles must be understood, of which 4.61 make a geographic mile.

†Mr. Kloss here loosely refers to the northern waters of the state. In reality the Rainy Lake river does not flow east into lake Superior, but westward into lake Winnipeg. [N. H. W.]

The sand and clay deposits of the drift formation are so thick that the smaller water-falls, the brooks and the rivers which have little descent, afford no additions to the outcropping rock. In southern Minnesota are cuts along the railroads from fifty to a hundred feet deep in which the bluffs show nothing but sand, loam and clay, without any organic remains. The drift forms sometimes a hilly, heavy deposit or extensive terrain, and sometimes a smooth horizontal surface as level as the sea. The depressions and valleys between the hills are generally filled with water, and thus are formed a numberless multitude of smaller and larger lakes. Their shores generally descend gradually, and show in the water-worn masses which gather there, the most varied kinds of crystalline rocks and metamorphic schists. Many swampy spots, both in the forest and on the prairie, are dried up lakes. By further draining these make excellent pasture grounds. The low grounds filled with water in the surface of the drift, are the remains of a single extensive fresh-water lake. In many places can be seen the remains of this old lake deposit. They consist of clay and loam with the same fresh-water mussel and snail shells as live at the present time in lakes and rivers. The southern shore of this lake lies probably not far from the Iowa boundary, where the highest ridges of the plateau are found. At Rochester and Mankato, points south of the Minnesota river, have been found trunks and branches of various kinds of trees, especially oak and cedar, in hills consisting of clay, twenty to fifty feet under the surface, and nine hundred and forty feet above the ocean level. These are all evident proofs that these ridges have once been the swampy shores of an ancient fresh-water basin.

The plains of Minnesota have a hight from 800 to 1,200 feet above the sea-level. The hill-ranges which run in various directions and form the water divides between the rivers and river-systems, reach in some places the hight of 1600 and 1700 feet. These are at the same time also the highest land of the country, and actual mountain ranges of rock do not exist.* The passage from the low lands to the water sheds is for the most part imperceptible, and the undulations of the plains, with the exception of the shores of the great rivers, take place altogether gradually. The highest water-shed lies in the northern part of the state, and separates the waters which flow south through the Mississippi valley, from those which have a northerly direction toward Hudson's bay. It is composed, through its whole extent, of drift; also theother divides, and greater elevations of the surface, consist of sand, loam and clay, and it is in the lower grounds and river valleys that one must seek for the older layers of the earth's crust. The shores of the Mississippi, with the range of bluffs lying nearest, consist of rocks which belong to the oldest portions of the Silurian formation. They are sandstones and dolomitic limestones which correspond to the Potsdam and Calciferous Sandstone, as well as the Trenton period, in the state of New York and in Canada. The layers are in all places nearly horizontal; but where the river has excavated the sandstone, and undermined the limestone beds, the latter are thrown down, and in many places over large areas, have apparently suffered an extensive denudation. The formations mentioned are in outcrop from the mouth of the Wisconsin river to the Falls of St. Anthony, over an extent of 210 miles. At the Wisconsin river the higher layers of the Silurian disappear, and there remain only the equivalents of the Potsdam and Calciferous sandrock, from there to St. Paul. The beds have at first a gentle southerly dip, which they maintain to Mountain Island, in the neighborhood of the city of Winona. Here is the highest part of a saddle-shaped elevation, and from there the layers have a dip, though almost imperceptible, toward the north. The elevation and depression in the hight of the separate layers make it possible to establish these conditions most clearly, as has been set forth in several profiles by Owen in an admirable manner. I had the opportunity to examine somewhat carefully the layers in the heighborhood of this saddle. The first line of bluffs rises precipitously to the hight of five or six hundred feet above the floodplain, and shows the outcroping of beds which after considerable interruption have their continuance on the opposite shore. The lowest is a sandrock, and over it are beds of dolomite. The former, which occupies the greater part of the rock-bluff, exhibits a different texture in different places. Some beds are coarse-grained, and approach a conglomerate, and others are very fine-grained. It is in general loose and crumbling with lime-cement. The dolomite, which here may reach a thickness of ninety feet, is of a light color, vesicular-crystalline, and resembles the German *Zechstein-dolomit.* It incloses many calc-spar and flinty concretions, which often attain a considerable size. I could discover no distinct fossils. Only in one place did I find a fragment of a coiled cephalopod, which must have been of considerable size. Afterwards I found the same sandstone on the St. Croix river where some of the layers are very rich in bivalves, and I shall mention later their occurrence in describing the same rock again in the neighborhood of Taylor's Falls. The sandstone Owen has named *Lower Silurian sandstone of the upper Mississippi,* and the dolomite he distinguishes as the *Lower Magnesian limestone.* The former answers to the *Potsdam Sandstone,* and the latter to the *Calciferous Sandstone,* of New York. The characteristic fossils are trilobites, which for the most part belong to the genus *Dikelocephalus,* also *Lingula* and *Orbicula.* In Minnesota it is difficult to find any large fragments of trilobites in the crumbling sandstone. Relying on observations made in Wisconsin, Owen distinguishes in this sandstone six trilobite-beds, which are separated from each other by other beds from ten to a hundred and fifty feet thick. In the magnesian limestone have been found up to this time only inconsiderable, and hardly recognizable, remains of fossils. They are a small *Lingula,* casts of the interior of shells which are related to *Euomphalus* and *Ophileta,* also fragments of trilobites like those in the sandstone. The geological horizon, therefore, of the lower dolomite must be determined at present from its position between the Potsdam Sandstone and layers of the Trenton formation.

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*According to published elevations, the hight of lake Superior at its low stage is taken at 600 feet. The latest measurements give an average hight of 605 feet) The Water-level varies in different years, and changes even with the seasons.

Before reaching the mouth of the St. Croix river above which both banks of the Mississippi belong to Minnesota, the lower sandstone disappears, and the shores, which have a hight of 200 or 300 feet, consis entirely of dolomite, which exhibits most remarkable water-worn forms, and presents many changes in its outer contour. The bluffs frequently pass back from the water, and the banks become lower. At Red rock, six miles below St. Paul, the hills are half a mile back from the river, while the shores rise but a few feet above the water level, and form a plain which is fertile but exposed to frequent inundations. Small exposures of the dolomite are still to be seen. The bluffs consist almost entirely of the next higher layers, the equivalents of the Trenton formation. At St. Paul the same rocks outcrop by the river, and form a rugged rock bluff from 90 to 100 feet high. From here the Trenton group continues, till, above the falls of St. Anthony, all the layers disappear together under a heavy covering of drift.

At St. Paul the bluffs have a thickness of 65 feet of sandstone, covered by 15 to 25 feet of heavy limestone layers, a repetition, therefore, to a certain extent of the bluffs below. Yet the sandstone hardly deserves this name, in that a cementing material is entirely wanting, and the rock can be dug into as easily as a sand bank. Indeed it is nothing but a vast bed of quartz grains that hardly hang together, in some places, of unusual clearness and transparency. For this reason it has been recommended by Shumard, one of Owen's assistants, for the manufacture of glass. The shining white walls of this sand rise perpendicularly from the water, and reach at Fort Snelling, an old fortification against the Indians, at the mouth of the St. Peter river, its greatest height. From here to St. Anthony the height, as well as the thickness, of the sandstone gradually diminishes. I have never yet succeeded in finding any fossils in this sand, and Owen regards it as entirely destitute of fossil remains. As it everywhere appears in close connection with the overlying limestone beds, which contain a great number of fossils characteristic of the Trenton of New York and the Llandeilo Flags of England, it must for that reason be placed with them in the same group, and is regarded by American geologists as the western equivalent of the Chazy limestone.

It seems at first a remarkable circumstance that so old a sandstone, covered by limestone beds, should possess so little firmness, but on examining carefully the stratification, a shale bed is discovered between the limestone and the sandrock, by which a supply of limy cement must be entirely cut off. Indeed in the upper part of the sandstone are shaly layers, and they attain, under the limestone, a thickness of one and a half to two feet. The shale has a dull blue color, efferœsces with acids, on being dried falls away in long shaly fragments, and is converted to a thick paste when exposed to the influence of water and air.

Concerning the stratification of the Trenton, as it is displayed on the upper Mississippi, I shall speak in a later work.* The cities of St. Paul, Minneapolis and St. Anthony are built upon the same rock-beds, and in St. Paul especially are found numerous outcrops. The limestones are clayey or dolomitic. The middle portion, which is the greatest, furnishes a very good building material, of which the stone structures of the cities mentioned are built. The best known fossils are:

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*The layers of the Trenton have had formerly a much greater extent. In southeastern Minnesota are many isolated patches of limestone and of the St. Peter sandstone yet to be brought to light and described. The fine sand which has so great an extent in the banks of the St. Peter river is derived from the weathered and scattered debris of sandrock.

Orthis tricenaria. Conrad.
Orthis testudinaria. Dalm.
Leptaena sericea. Sow.
A smooth *Pentamerus* and a *Strophomena.*
Murchisonia bicincta.
Bellerophon bilobatus. Sow.

All characteristic shells of the Trenton, and partly also of the Llandeilo Flags of England.

In the higher layers are added corals and brachiopods as well as a trilobite, which are not seen in the lower layers. They are for the most part the following:

Rhynchonella recurvirostra. Hall.
Rhynchonella increbescens. Hall.
Petraia corniculum. Hall.
Stenopora fibrosa. Goldf.
Calymene senaria. (*Blumenbachii.*)
Ptilodictya sp.—

fossils which altogether have been assigned to the Trenton by Logan in Canada.

Six miles above St. Paul the Minnesota or St. Peter's river empties into the Mississippi, having its source in a lake on the boundary line of Dakota. In its banks the lower beds of the Silurian again outcrop. Still its banks remain much lower than those of the Mississippi, and the lower sandstone nowhere reaches a greater thickness than 35 feet above the water.[*]

Between Minneapolis and St. Anthony, which lie opposite each other, the Mississippi forms at the present time a water-fall which, in a manner similar to Niagara, only at a greater rate, is kept in constant recession. The white sandstone, or rather the sand bank, is exposed unceasingly to the influence of the falling water. It is washed out, and the overlying limestone beds are broken off in great sheets which fall down. This process can be observed everywhere in the neighborhood of the falls In the midst of the river-channel lie the limestone masses scattered here and there in wild confusion. The falls are now but twenty feet high, yet must have had formerly, when the water plunged from the limestone beds, further down the river, a much greater height. Plans have been sought for to keep the falls in the same place by means of dams, canals and locks, since both St. Anthony and Minneapolis are manufacturing cities, and the timber from the northern part of the State is here sawed in a large number of mills.

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[*] The "Lower Sandstone" here referred to is the Jordan sandstone, and is not the "Lower Sandstone" seen in the Mississippi bluffs. [N. H W.]

Every little stream that enters the Mississippi over its high bluffs exhibits in a small way the same phenomena. Hence arise a number of smaller very picturesque water-falls, which are met with in the neighborhood of both the cities mentioned, among which Minnehaha (Laughing-water) is best known.

The Trenton limestone is the youngest member of the Silurian formation that I have as yet been able to find in the banks of the Mississippi.* In southern Minnesota it seems also that the equivalents of the Hudson river and Clinton formations are found. During the writing of this sketch I have seen in an American teacher's monthly journal a little treatise on the geology of southern Minnesota, in which the author mentions in the banks of Root river, a tributary of the Mississippi, a hundred and forty feet of beds of shale and shaly layers overlying the Trenton limestone, and covered by still other beds of sandstone with a thickness of a hundred and fifty feet.† Still I have not been able to learn anything in detail concerning these layers; and inasmuch as no fossils from these beds were mentioned their age still remains questionable, although it is not unlikely that the younger members of the Silurian pass from northern Iowa to this side of the Minnesota boundary. I have exhibited the boundaries of the Upper Silurian and Devonian in southeastern Minnesota on the accompanying plate, according to the representation of Mr. Hurlbut.

Above St. Anthony the older formations are covered by sand and drift for a distance of sixty miles, and the banks of the Mississippi show no outcrops. A few miles below the city of St. Cloud the area of the crystalline rocks begins. The stratigraphical relations of the sedimentary formations in respect to these outcrops of granitic rocks unfortunately cannot be ascertained. The most southerly point at which I found the granitic rock was on the Sauk river, one of the important tributaries of the Mississippi river in this region. Also between these rivers low outcrops of granite rock suddenly appear in the midst of the forest. In the banks of the Mississippi itself no outcrops of granite are known so far south. The strike of the crystalline rock seems, for that reason, to run in a north northeasterly direction. It forms low hills, and flat, or somewhat rounded, knolls, which rise suddenly above the swampy plains. The Mississippi continues twenty miles in this way—toward the north then it enters on a belt of metamorphic schists of about the same width, of which I only had information of a mica-schist containing a great number of beautiful staurolite crystals.

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*The Hudson River beds can be seen at St. Paul, with a thickness of about 100 feet. [N. H. W.]

†W. D. Hurlbut, in the Minnesota Teacher, February, 1871.

The crystalline rocks of the Upper Mississippi show a great difference in their structure. They consist, for the most part of hornblende, orthoclase, oligoclase and mica. Quartz, indeed, is generally also present, though often in very small amount. Real granites, disregarding several fine granite-porphyries, are apparently rare, as well as real syenites. These rocks are in many respects interesting and I am preparing a more special work on the subject. The syenite-granites, as I shall provisionally designate them, show numerous changes from hornblende to mica. Many parts are hornblendic on the borders, and others are completely covered over with mica scales. The hornblende is greenish-black, lustrous or earthy, the mica dark-brown, and very glistening.

Quarries have lately been opened in different rocks of this range; they are to be used as building-stone, which, till now, has been confined to the bluish dolomitic limestone of St. Paul and St. Anthony. At St. Cloud a rock has been opened, which shows uniformly a clear-blue color which is derived from the bluish-white, translucent, feldspar. The United States Custom House, in St. Paul, is now partly built of it, and it has also been used a little in smaller buildings. At Sauk Rapids is a similar rock, bearing less quartz and more hornblende, used in the construction of a dam, and for bridge-piers. Further north has been opened for several months a quarry in a very fine decided granite. The greatly predominating orthoclase has, in fresh condition, a glistening white color. Next to that in amount comes the quartz, in grayish grains, and then black mica. This rock is also known as "Watab white granite," and, as soon as the railroad which now only reaches as far as Sauk Rapids, is extended further, will be largely transported to Chicago and St. Louis for large buildings.

In the whole Mississipi valley, from New Orleans to St. Cloud, no crystalline rocks are found, and it has been necessary to use, unti now, limestone and sandstone, of rather inferior quality, as material for building. The quarrying of these granite rocks on the upper Mississippi promises for Minnesota in the future to become an important industry.

In a south south-westerly direction appears a similar region of crystalline rocks, exposed on the Minnesota river, where Owen observed granite and syenitic rocks over an extent of 45 miles, between the Cottonwood and Redwood rivers. The region between these points furnishes no outcrops. It consists partly of rolling prairie, and has many lakes on the shores of which water-worn drift-boulders are heaped up. The drift here is very thick; and as the leveling for the building of the Pacific railroad has been carried over it, it is found to constitute a high plateau between the Sauk and Minnesota rivers.

While on one side the hight of the first plateau at the Mississippi reaches 750 to 800 feet above the sea level, and lake Traverse on the Dakota boundary on the other side lies 825 feet above the sea, the line of divide through this high plateau, in the strike of the granite range, is from 1,100 to 1,250 feet above the sea.

According to Whittlesey who has passed repeatedly over the region, there is a connection between the granites of the upper Mississippi and those of the Minnesota. He even goes further, and continues the range northeastwardly along the watershed north of lake Superior. The crystalline rocks observed by him on the upper course of the Rum river, south of Mille Lacs lake, lie in the same prolongation. The slight elevation of the ridges and the thickness of the drift, make it, nevertheless, as yet impossible to demonstrate the connection.

Also Norwood, on the map of the geological survey, in the atlas to Owen's report, extends the line of the crystalline rocks from the upper Mississippi to the Minnesota river. Further, he unites it with the area of granite and crystalline schists in the extreme northern part of the state, which apparently correspond in age and composition to the Laurentian system of Canada. Prof. Hall says that the rocks in the neighborhood of the Redwood river have a gneissic character, and belong to the laurentian system. The metamorphosed sandstones and quartzyte which outcrop in the region and are extended widely over southwestern Minnesota, he places in the Huronian. The relations which these systems sustain to each other are at present not yet ascertained.

Yet all the present indications are that a wide zone of Laurentian rocks goes diagonally through Minnesota, and is accompanied on both sides by Huronian rocks. Until now, the latter were known only to the north of lake Superior. Their presence, however, in southern Minnesota, Prof. Hall has called attention to, where he has also assigned the celebrated "Pipestone Quarry" to the same age. As I shall show in the course of this work, the roofing slates on the St. Louis river must also be reckoned in the Huronian formation.

The interval between the Mississippi and the Red river of the North, amounts to 120 miles. Over this whole extent no outcropping rock has been known with certainty. It is nevertheless probable that the regular succession of Silurian rocks which are displayed on the east of the granites and crystalline schists, returns again on the west. Besides, Owen mentions a spot on the Red river in the neighborhood of the present town of Breckenridge where the Lower Silurian limestone is exposed.* As far as my knowledge goes, this is at the present time the only spot on the Red river, this side the international boundary, where an outcropping rock has been observed. Waterworn pieces of Silurian limestone are, however, of very frequent occurrence in the drift of the Red river valley. Whittlesey mentions Potsdam Sandstone at the falls of Pokegama on the Mississippi in north latitude 47° 15′, northwest of the Laurentian belt. This observation had, indeed, also been made by Owen, and this seems to be the reason why Norwood extends the oldest members of the Silurian on his chart to this place.

A very interesting portion of Minnesota to the geologist, is the eastern; viz.: the shores of lake Superior and the bluffs of the St. Louis and St. Croix rivers. The St. Croix valley which forms the boundary line of Wisconsin, lies, for the most part, in the lowest beds of the Silurian. The principal fossils of the Potsdam Sandstone, and of the lower dolomite are found in this valley. The greatest thickness of this sandstone above the water reaches 170 feet; also the dolomite here reaches the thickness of 100 feet. The beds are apparently horizontal, but in general they have a gentle dip toward the south. Forty-five miles above its mouth the river is contracted, and suddenly its banks take on a different character. In place of the regular contour lines of the sandstone, are rough jagged rocks which outcrop close by the water. Here one stands on the rocks of the celebrated and picturesque "Dalles" or *Felsenhallen* of the St. Croix. The rock has been named by American geologists "porphyritic trap," and it resembles the Norwegian porphyry, which can be seen at Bogstadt on the west side of the Christiana Fiord. Several beds of this rock are cut through by the river, and alternate in the banks with the layers of the Potsdam Sandstone. As yet, I have had the opportunity only to examine this interesting rock over a small area in the neighborhood of the town of Taylor's Falls, near the falls of the St. Croix. Here it is exhibited as a beautiful, quartzless porphyry, or porphyryte, and constitutes the shores of the river and the hill-ranges.

I reached the river from the west side. After I had traveled for hours from St. Paul over the beautiful prairie, suddenly the deep and widely cut valley presented itself right before me. It was a surprising sight. With the greatest regularity of hight, lay several terraces above each other, and with the same hight they were visible also along the opposite bluffs on the Wisconsin side. Taylor's Falls is built on the first terrace, at the foot of which the water boils over the rock crags with the noise of thunder. Right opposite lie the falling ruins of a town in Wisconsin named St. Croix Falls, which owes its hasty bloom and its short, ephemeral existence to the speculation of several enterprising Yankees. Taylor's Falls is what is called in the west, a *lumbering-town*, that is, a place where the lumbermen of the St. Croix buy provisions, and from which, every winter, the men depart for the pineries. The high hills which enclose the place consist of porphyry. Further down the river appears the Potsdam sandstone.

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*No one else has ever seen this outcrop of limestone.—[N. H. W.]

The river here does not cut through a single ridge of the crystalline rock, but several diagonal ridges of an area of porphyry. The rock has a pretty uniform character throughout its whole extent. The ground-mass is crypto-crystalline and has a dark-green color. Under the loop can be seen a dark, non-translucent mineral, which in many places is formed in fibrous particles [stangligen partien], and a translucent mineral having the color of olivine. The feldspar crystals, which vary from dark-brown to black, give the rock a characteristic spotted appearance. The feldspar shows very evident striation and twinning, and seems to be the same as that in the brown porphyry of lake Superior. I have found iron-pyrites only as an accessory portion. In several places the rock holds amygdules, the only material of which seems to be white translucent quartz.

The relation of the porphyry to the sandstone beds is interesting. Owen assumes that the latter have been broken through and cut by the trap, although, thereby neither their texture nor their horizontal position have been changed. I cannot confirm that view, but believe the relations of these rocks at Taylor's Falls must require that the porphyry is older than the sedimentary beds.*

Indeed, the layers of the sandstone, wholly undisturbed, as can be seen on both shores, demonstrate that. Furthermore, I observed on the right bank of the river, the rock-profile, seen in Fig. 1.

The sandstone beds here lie horizontal over the porphyry, and continue in this manner over an extended area. They contain a number of fossils which are very beautifully preserved, and prove, even as much as the texture of the sandrock, the insignificant influence of any later outbreak of plutonic rock. A better proof of the greater age of the porphyry was afforded me by a conglomerate which consists of nothing but large water-worn masses of the porphyry, the position of which is between the porphyry and the sandstone. This singular rock, which I saw only in one spot, but in a considerable thickness, descends from the porphyry down to the neighborhood of the sandstone. The water-worn masses, which occasionally reach a considerable size, lie immediately in contact with each other, and have but a slight cementing material between them. Still the rock is very hard, and plainly bedded. The rounded masses and the cementing material consist altogether of more or less decomposed porphyry. Unfortunately the spot where the conglomerate lies under the sandstone, is covered with vegetation. (See Fig. 2.)*

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*Mr Kloss is supported in this by Mr. Sweet, of the geological survey of Wisconsin. [N. H. W.]

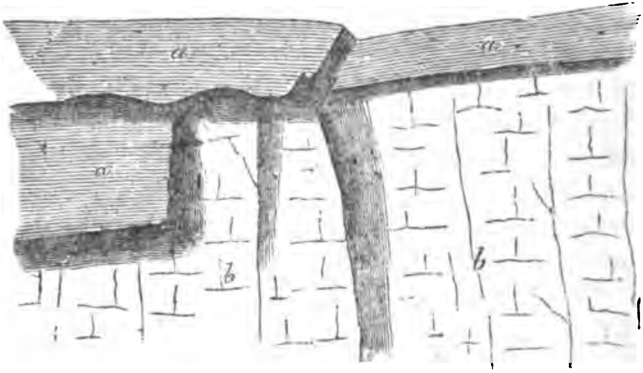

Fig. 1.

a a. Potsdam sandstone; the projecting beds which lie under the first river-terrace, on which Taylor's Falls is built. *b b*. Porphyry.

The character of the different beds which compose the sandstone at Taylor's Falls changes greatly in short intervals. The layers on the Minnesota side form a more continuous, projecting terrace than on the Wisconsin side, where, between the porphyry ranges, are several shallow or flat troughs. Going along the shore, I passed over several small hills, outrunners of the main hill range which forms a belt parallel with the river. Between these small hills lie the layers of sandstone, which descend on both sides level to the middle of the trough. If one ascends the main hill-range, nothing can be seen of the sandstone. How far the porphyry extends on each side from the river is unknown. In Minnesota, it disappears soon under the drift.

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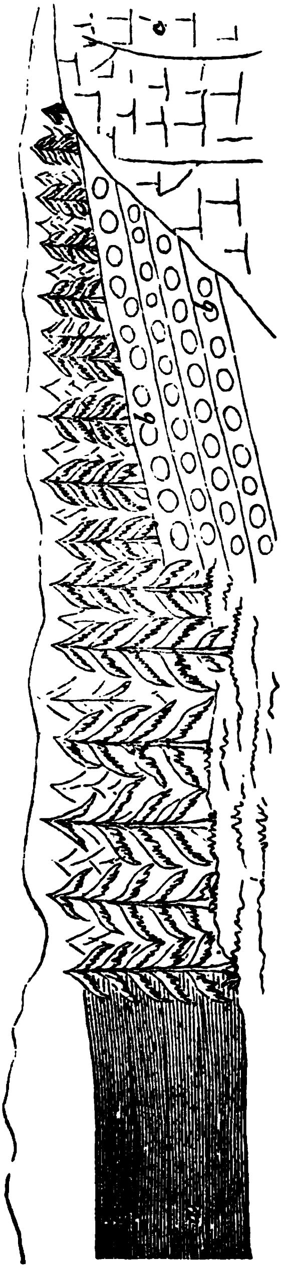
*Whittlesey mentions several spots in the neighborhood of lake Superior where the beds of the Potsdam sandstone lie upon the porphyry, both on the southern shore, at Kewenaw Point, in Wisconsin, and along the northern coast. But yet there can be no doubt that there is a porphyry and melaphyr of the age of the Potsdam sandstone, the layers of which it broke through and upturned. It seems that the outflow of this quartzless porphyry began in Huronian time, and continued through the first part of the Silurian. The inclusion of the sandstone within the porphyry, mentioned by Owen, I have not been able to find at Taylor's Falls, though I have made dilligent search.

Fig. 2.



a a **Sandstone;** *b b* **Conglomerate;** *c* **Porphyry.**

In one of these troughs the rock consists of thin layers of dolomitic marl. It has a clear-gray color, a smooth, conchoidal fracture like limestone, and crumbles in the air, and at the same time it assumes a dazzling white color At the first glance one is apt to take it for a limestone; yet as it does not effervesce at all with acids, it must be principally dolomitic. Further up the river lie dark, iron-stained, firm crystalline layers of a sandy limestone; also the same in thin layers. At the same level on the Minnesota side is a clayey sandstone which does not effervesce with acids. It varies from fine to coarse grained. The latter prevails in the lower portion of the confused mass, and forms a high bank which rests immediately on the porphyry.

All these rocks carry the known species of *Lingula*. Those with the narrow extended beak (*L. antiqua*), and those which are shorter and wider (*L. prisca*) are very abundant, and completely fill some of the layers. Specimens of the former frequently reach five-eighths inch in length. Besides *Lingula* there are also species of *Orbicula* and *Obolus*, and trilobite shields as large as peas (*Conocephalites minutus?*). The shells seem to be distributed in certain belts in the layers; especially is this the case in the coarse, conglomeritic sandstone.*

The varied composition of the beds in their general relations is remarkable. It is true a simple layering one over the other can be seen; on the other hand they all seem to

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*The large wedge-shaped *Lingula* Owen has described as a new species, naming it *L. pinnæformis*, on account of its resemblance to a *pinna*. Nevertheless his illustration of it cannot be distinguished from *L. antiqua*, and in his description he does not bring forward the difference between it and the older species. Another peculiar species which Owen cites from the Taylor's Falls beds is the *Orbicula prima*, a very well defined shell, but which still may be identical with species of *Orbicula* described before from other places. I have no opportunity here to investigate the specific differences, and I shall return to it again later.

occupy the same level; both sandstone and dolomitic shale outcrop opposite each other in the banks of the river at the same hight, and they vary but little from the horizontal.

In order to obtain an examination of the relations of the sedimentary beds to the porphyry and melaphyr-like rocks of the north shore of Lake Superior, I made a trip the past fall to the west end of that lake. The railroad which connects St. Paul with this great American lake was completed the first of August of the former year. An iron track of 155 miles now connects the end of navigation from the Atlantic Ocean with the head of navigation of the Mississippi. Till within a short time it was very difficult to travel from there to the head of Lake Superior—now one rides there in a few hours. The commencement of the autumn storms made it impossible to carry out my plan, and I was compelled to confine my observations to the St. Louis river and the immediate neighborhood of the railroad.

Except a few cuts in the Trenton limestone in the suburbs of St. Paul, the tract of country crossed by the Lake Superior road affords no outcrops of rock till one reaches the valley of the St. Louis river. A vast forest, for the greater part consisting of pine, covers over the whole region. The land is generally flat and swampy. The railroad surveys have established the highest point at 567 feet above Lake Superior, or 1,167 feet above the ocean. This point is 120 miles from St. Paul and 35 miles from the lake. On all sides the plateau is flat, descending gently in both directions.

The first outcropping rock appears in low ridges in the midst of a cedar swamp near the St. Louis river, and at this place occurs the first opportunity since leaving the Mississippi, to behold the bedded rocks.* From here to the lake there is much rock, which offers an extended and little explored field for geological studies. During my short visit I could only make obeervations at a few points. The region is for the most part difficult to travel over. Extensive forests and swamps conceal the rock from view. There are no roads—even between the different stations and new places on the railroad it is necessary to travel on the railroad itself. When the rivers and streams are no longer passable for canoes, it is necessary to scramble from rock to rock in order to be able to look at the neighboring country. A slippery red clay forms the surface covering, wherever the black soil is torn up. Wherever the trees have been cut and the brush burnt, wherever roads have begun to be laid out, it is entirely impossible to travel after the occurrence of a few showers of rain. The whole region bears, more than any other in Minnesota, the stamp of wildness and primitiveness. It has been asked, what can be made of it. It will require immense resources and great labor to make it habitable and productive.

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*The bedded rocks, however, also appear in outcrop at White Bear Lake, at Hinckley and at Moose Lake. [N. H. W.]

The St. Louis river comes from the north, from a region of granite gneiss and mica schist about Vermilion lake, and turns, just before its waters reach Lake Superior, with a sharp angle to the east. Here the railroad company has constructed a high bridge over the river, and a new town is established which has been named Thompson, from one of the officers of the company. The water has broken through the steepey tilted beds, and here forms a long succession of falls and rapids, which in a few miles produce a descent of 370 feet, and are known as the *Rapids of the St. Louis River*. The valley is narrow and shut in by high picturesque cliffs. A dark fir-tree forest covers the hills about —indeed no region of America has reminded me so forcibly of the valleys of the Hartz mountains, and especially of the Bode and a part of the Okerthales.

The rocks also are similar to the rocks of the Hartz. The various strata consist alternately of dark-blue crystalline layers, frequently in the form of roofing slates, and a light firm sandrock or quartzyte which looks like many German graywacke sandstones.*

There has been formed a company for the manufacture of the roofing slates. Two quarries have been opened which promise good results. The slate is carried to St. Paul by the railroad; and this may become in the future a profitable industry. Norwood also mentions other slates on the St. Louis which are of a talcose and chloritic nature. Since they are found further up the river, they are in age earlier than the roofing slates. He has also noted a steep dip in the layers in opposite directions, which he ascribed to the injection of igneous rocks. But these he did not find. I also found no crystalline rocks, and I am not of the opinion that at the falls of the St. Louis river any local cause appears that produced the disturbance of the layers. So far as known to me the bedded rocks of northern Minnesota which are older than the Silurian, have been upheaved in the same manner. The beds are broken in a jagged form, and stand out boldly in little rock-islands in the very channel of the river, by which the quartzyte and slaty layers are always easy to distinguish, because the former constitute the elevated parts and the latter the troughs of the outcropping layers, as they are eroded and excavated by the water. No fossils have yet been found in these beds. The inclusions consist of little sulphur nodules. The principal quartzyte beds are penetrated by veins which are composed of quartz and calc-spar. Lines of feldspar are also of frequent occurrence in the slates.

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*This quartzyte seems to have been taken for greenstone both by Norwood and Eames.

Probably this whole formation belongs to the Huronian system which on Lake Huron and in the upper Peninsula of Michigan, appears between the Laurentian system and the lower Silurian. The position here exactly corresponds to that horizon. Credner in his work* on the pre-Silurian formations of the Upper Peninsula of Michigan, regards as a member of the Huronian a series of clay-slates and quartzyte beds of which the description applies equally well to these rocks. Chloritic slates constitute there as here a portion of the formation. The Potsdam Sandstone lies upon the outcropping beds in Michigan in the same manner as it can be seen to do on these beds further down the river at Fond du Lac. I have not examined this point myself, but quote Norwood's report, as to the facts, as follows: "Not far from the village of Fond du Lac the clay slates and chloritic slates are lost under the conglomerates and red sandstones of Lake Superior, the lower part of the Potsdam system. The latter lie upon the outcropping edges of the slates, with an inclination of six or seven degrees, but dip in the same direction." The place where the two systems lie unconformable to each other does not exceed three miles from the railroad bridge at Thompson, according to the statements of Norwood. From the position of the clay slates, one can infer the presence of the iron-bearing beds which in Michigan characterize the lower part of the Huronian. Perhaps these are the iron beds at Vermilion lake, in the neighborhood of which the metamorphic layers of the Laurentian begin.

Only at one place is the red sandstone to be seen near the railroad in the neighborhood of Lake Superior. This can not be far from the spot where this rock, in connection with the coarse conglomerate, lies unconformably upon the Huronian. The beds here lie nearly horizontal, with a slight inclination toward the south. The upper cuts of the railroad are in red clay before mentioned which, with varying beds of shale, sand and gravel, covers the older formations north and south from the great lake. It embraces a great extent of territory, reaches the height of 600 or 700 feet above the water level, and fills the valleys intervening between the ridges of the clay slates and quartzytes.

At the end of the railroad, where at the present time the streets of the new city of Duluth are being laid out on a steep hillside with an outlay of unprecedented expense, are large exposures of different kinds of crystalline rocks. These form the shores on the left of St. Louis Bay and of the Bay of Superior. The former consists of a widening of the mouth of the river, the latter of a part of the lake shut in by a narrow strip of land, forming a fine harbor. The conformation of the west end of Lake Superior is in the highest degree remarkable. Two small tongues of land project parallel with each from the shore, and are met by narrow points extended in the same way from the Wisconsin shore. Narrow channels or passes only are left so as to admit to the waters enclosed between them. The outermost of these strips of land, Minnesota Point, is six miles long, and has a mean width of only 600 feet. It consists of beach-worn material, or shingle, and it rises but few feet above the level of the water. These pieces have an oblong, generally flattened form, and consist for the most part, of melaphyr, porphyry, and amygdaloid with calc-spar geodes, both large and small.

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*This Journal, 1869, p. 528.

Connor's Point in Wisconsin and Rice's Point in Minnesota separate the Bay of St. Louis from Superior Bay. Between them is a channel affording fifty feet depth of water, through which the waters of the St Louis reach the lake. Superior Bay has its greatest depth near Minnesota Point. Along the opposite shore in Wisconsin it was necessary to build out more than a hundred feet into the bay to find nine feet of water, while on the Minnesota side the water had a depth of 15 to 18 feet. A street from Duluth extends now along Minnesota Point, and the railroad company have begun to cut through it in the neighborhood of the place where it is joined to the mainland, for the purpose of making a fine harbor, sheltered by this natural breakwater. The natural approach, six miles further south, is exposed to much drifting sand, and has also been worked by the people of Wisconsin in order to improve it for an entrance.

In the vicinity of Duluth I have observed three different kinds of rock, but nowhere could I make out the connection which they have to each other. The first, which rises from under the red drift clay and is finely exposed in the vicinity of the railroad depot, the Americans style "granite," to which, however, it has no resemblance. It consists principally of a feldspar of a dirty white color, which is in the form of fine large crystalline grains, which show three cleavage directions. Two of these stand almost at right angles to one another, one of which has a marked greasy luster, and the other a strong glassy luster with fine twinning-lines. The third cleavage direction is only made apparent by fractures which cut both of the others at acute angles, and seems to appear very rarely. I took the feldspar for labradorite. The second ingredient is a dark green to black mineral, of a greasy appearance, which it is difficult to distinguish, because the color is like that of the predominant feldspar. It is indistinctly fibrous, and I took it for diallage or hypersthene. A black, shining mineral, in irregularly shaped grains, which have a strong metallic luster, is sprinkled abundantly in this rock, and stands out beyond all the others on the surface of the weathered crust. On a fresh fracture of the rock it is hard and brittle. Yet under the action of the atmosphere it becomes softer, and then if it is scratched with a knife, small black particles of it remain attached to the blade. Before the blow pipe it behaves like pure magnetic iron. It disintegrates only after a long time, and very seldom is it seen to become oxidized on the outside and changed to a brown ochre. No trace of titanium was discovered.

For the most part this rock has a resemblance to gabbro, or hypersthenyte, although it shows in its whole extent a tolerably uniform structure, and generally a coarsely granular texture. In this rock a quarry has been opened, and the stone is being worked and polished for monumental purposes.

The second rock is cryptocrystalline to compact. In the black groundmass lie brightly glittering needles of feldspar with evident twinning striation. It is exactly like the rock from small veins in the syenite at Sauk Rapids on the Mississippi, and is to be considered, probably, with the greatest degree of exactness, until a more close examination can be made, as a black porphyry or melaphyr.

Next to this a beautiful porphyry forms the first rock at the shore of the lake. This rock is different from the porphyry of the St. Croix river, and in the main resembles the porphyry from Ilfeld in the Hartz. In fresh condition the groundmass is an exceedingly fine-grained mixture of a clear and a dark-brown mineral. The feldspar crystals appear only by reason of their luster, upon the commencement of disintegration of the rock, because of their presenting a somewhat brighter color. Magnetite is sparsely disseminated, and still more sparsely a little pistazite. But the latter mineral is very abundant in the seams, and veins of calc-spar with which the rock is very much intersected. In the same manner also laumontite occurs, and in fact as a pseudomorph after calc-spar. In company with this brown porphyry is found an amygdaloid with a somewhat decayed groundmass. The cavities, which are somewhat elongated, are filled with quartz, calc-spar, chlorite and a decayed iron-bearing mineral. The crystals of feldspar in the porphyry are also in process of decay. A regular variation or interchange between these two rocks is nowhere to be seen. On the other hand the undecayed massive porphyry goes over to the amygdaloid Apparently the decaying of the groundmass and the crystals has gone on step by step with the filling of the amygdaloidal cavities. As already remarked, I have observed the above described rocks nowhere in contact. The works in the city of Duluth will, however, soon furnish fine exposures. The beds of the Lower Silurian which appear further down on the Lake Superior shore, and upon the river, are not found at Duluth nor in the immediate vicinity. Similar reddish-brown porphyries appear to be very widely distributed on the north shore of Lake Superior. The lateness of the season prevented an excursion in a sail boat for observation along the coast. The above described crystalline rocks are grouped together by all American geologists under the name "trap." Whittlesey mentions an augitic, quartziferous and amygdaloidal trap. In other places he speaks of a brown, decayed trap, and of a firm trap, both cut through by dykes of basalt, without giving any further definition of these different rocks.

The Potsdam sandstone forms the north shore of Lake Superior, as well as the south shore. The dip of the beds forms an anticlinal, and the lake consists of a basin of fresh water in the layers of the Lower Silurian. The breaking out of porphyries and melaphyrs, sometimes in the form of dykes and at other times alternating in layers with the sandstone, makes the geological relations very complicated. Along the north shore runs a range of hills which consist of metamorphic and plutonic rocks belonging to the Huronian formation. Five or six miles inland it attains its greatest hight of 600 to 1,000 feet above the level of the lake. Then this terrane is wanting, for the most part, along the coast, and the Silurian beds overlie the Huronian.

A number of streams have their sources in this hill-range, and often winding through the bedded and massive rocks, with rapid descent bear their waters to the lake. They give rise to many outcrops and lay bare the bedding and such like conditions of the melaphyr-masses. Several have attained a positive reputation for their promise of profitable mining of copper, and are valued highly for the future mining of this metal. This is especially the case at the French and Knife river districts.

Whittlesey says that the trappean rocks which bear metallic copper, are of the age of the Potsdam sandstone, and that those that contain the sulphuret ores belong to the Huronian formation.* Also that the cupriferous beds become barren when they change from trap to sandstone. I am still too little acquainted with the appearance of copper on the north shore of Lake Superior, to presume to have an opinion respecting those beds that may be valuable for mining, but I do not believe that the first of these statements has any general validity. I had opportunity to examine somewhat closely some fragments from a vein in a rock designated "trap," from the north shore. It was obtained from a bay between Encampment Island and Kinewabic river, and hence from the area occupied by the rocks of the Potsdam. This place is 30 miles from Duluth, and in the vicinity of Knife river. The rock has a resemblance to a bright, clay-slate, with many strings of calc-spar cutting it in all directions. The calc-spar is crystallized in veins. Its weight certainly indicated that it contained copper or iron. Upon a careful examination can be seen also a sulphide, and black specks of a substance having a metallic luster on the outside, finely scattered through the mass. The latter shows before the blowpipe, the reactions of a mixture of chalcopyrite and pyrite. It contained no native copper, and I could not discover in the wet way any trace of silver.

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*Whittlesey's report of 1866, p. 5.

The above mentioned rock is said to have a thickness of forty feet, and rises perpendicular from the shore, and can be followed inland a short distance. Only the smallest portion of this mass embraces those sulphides and metallic compounds. Similar exposures, showing a little metallic content, a layering and a network of a small mineral vein, are a frequent occurrence in these massive rocks, and point with certainty to a very general diffusion of copper. Yet it has not been found in sufficient quantity to support mining with profit. The best prospects are located at French river, in melaphyrs interbedded with sandstone.

Immediately after the conclusion of a treaty with the Indians in the year 1854, by the terms of which the north shore of Lake Superior was opened to the whites, agents of eastern capitalists explored the region for mineral deposits, Upon superficial observations of men who had but slight acquaintance either with geology or mining, large tracts here were set forth as mineral lands, and as such were disposed of by the government to companies and private individuals. In 1858 the land was surveyed, and many "claims," which had been made before were relinquished. A few years ago a company was formed in Buffalo which began to explore the regions of French and Knife rivers more carefully. A shaft was sunk to the depth of 48 feet, and a quantity of copper ore was found in the deeper lying beds. Nevertheless, these works are now suspended.

At different places on the St. Croix river and its tributaries, copper has been found. Especially is Taylor's Falls and that vicinity, as well as Kettle river, forty miles further north in Minnesota, regarded as a region which some time will be celebrated as a copper.producing district. What has been found thus far consists, in the first place, of large massive pieces in the river-bed, and in the water-worn material of the drift which covers the river banks, and secondly of veins and layers in the porphyry, which produce both metallic copper and copper-glance and copper-oxide, from a heavy but decayed gangue.

Massive, irregularly-shaped, but rounded pieces of native copper have been found in several places in the valleys of streams coming from the north. I saw at Taylor's Falls a heavy specimen weighing fifteen pounds, which was found in the digging of a well several feet below the surface, in the drift. These copper masses in every instance have been exposed for a considerable time to the action of water, and I do not believe that their place of origin should be considered as being in that vicinity. In this opinion I was afterward strengthened, since I found in the drift and gravel which lie on the St. Peter sandstone, as large and equally rounded a piece of metallic copper in the eastern part of the city of St. Paul. It is most probable that along with the drift, metallic copper is brought hither from the southern shores of Lake Superior.*

What I have seen of the copper-bearing rocks of Taylor's Falls, shows the presence of this metal in small quantities near the surface, affording, therefore, some expectation of profit on deep mining. I was conducted to two old shafts and several pits which some time before had been sunk on the summit of a range of porphyry. The shafts were filled with water to the top. The material lying about contained no native copper. It was a porphyry in process of decay, with veins of quartz and feldspar. A six-inch vein of feldspathic, decayed rock had given rise to the exploration. The feldspar vein can be followed for a distance of several hundred feet, and, according to the statement of my companion, under whose instigation the work had been undertaken, had a thickness of two and one-half feet at the depth of twenty. The samples brought from this depth consist of a much changed feldespathic snd calcareous rock. Copper strikes through the mass in slender leaves and threads. Fine black threads, of a black metallic luster, were found to be copper-sulphide, before the blowpipe, and did not exhibit, in the wet way, any content of silver, so far as I could judge. A second place, which had been pointed out by the residents as an outcrop of a copper vein, is at the mouth of a creek which passes down the steep bluffs through the midst of the town. It was a sort of contact-vein between the porphyry and the sandstone. What I could see of the gang-mass in the neighborhood of the very imperfect exposure, consisted of an earthy, much changed amygdaloid. It was asserted to me that copper is to be found, although I saw in the amygdaloid itself not a trace; and I expect that it is one of the erratic pieces from the drift, which is disseminated in the bed of the creek between the larger blocks of porphyry.

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*Masses of metallic copper are found occasionally in the northern drift in Michigan, Wisconsin and Ohio.

Similar feldspar veins as those above mentioned are a very frequent appearance in the porphyry. They always have at the surface only a few inches thickness.

More promising appears the copper outcrop on Kettle river. In 1865 it was pronounced a true vein with a width of 22 feet by Prof. James Hall. I obtained several pieces of the gang. They consist, first, of a brownish dense melaphyr-amygdaloid without apparent crystals. The cavities are filled with quartz, calcite, epidote and copper. It is cut through by numberless fine slits which are filled with the same minerals. The copper is in threads, thin sheets, and also in net-work and knot-like forms, and is always accompanied by quartz, calcite and epidote. The color of the groundmass changes from brown to green, and several specimens approach the color of green, although more distinctly colored through. This is a bluish-green rock, with heavy groundmass, though without evident crystals still carrying the same cavities and amygdaloidal minerals.

A third rock is much changed, mainly feldspathic, but interspersed with a dark mineral. Its prevailing color is derived from copper-salts. The copper is metallic, and is desseminated in extremely fine threads through the whole mass. In this rock appear outcropping veins of copper-glance and earthy malachite. At least there are, among the material derived from this locality, two handsamples which show both these ores in the same groundmass.

The copper-bearing samples of rock from Kettle river, collectively, have the aspect and the characters of vein rocks.

How far the above described appearances may warrant the hope of profitable mining of copper, must be left undetermined till more exact investigations shall have established the extent, the range and the content of copper. The lands of Kettle river have been taken possession of by speculators, in the same manner as those of the north shore of Lake Superior some time before. Here and there examinations have been made in order to learn something of the particulars of the region, yet always in a hasty way and generally by people without sufficient geological knowledge.

From Vermilion lake I have become acquainted with gneisses and firmly crystalline clay slates with much interspersed pyrites, which apparently belong to the Laurentian system. A number of quartz veins cut through these metamorphic schists, which contain a little portion of copper pyrite. The pyrite has been shown to be gold-bearing. A short time ago arose a real *excitement*, of the American type, over Vermilion lake, because it was believed that here had been found a new gold field. There were formed in Chicago, New York, and other cities, several companies; and caravans with furnaces, stamp-works, and amalgamating mills, pressed forward into the wilderness. Large sums of money were soon sunk in Vermilion lake. The government itself laid out a road from Duluth, and the works were in progress till a short time since. Several shafts were dug, among others one 70 feet deep by a New York company. As yet the costs have far exceeded in amount the value of the small quantity of gold which has actually been taken out. I have seen a number of samples of the gold-bearing quartz of Vermilion lake, but have not yet found even a speck of native gold. Likewise I have not been able, in spite of the most diligent enquiry, to find any one who has seen it. There is now no doubt at all that so long as the region remains inhabited by Indians and fur-animals, separated seventy miles from any railroad, the amount of gold taken out cannot pay any one.

The same must be said of the iron ores outcropping in the neighborhood of Vermilion lake, concerning which the reports brought by travelers are very favorable; the profitable mining of which, nevertheless will not be entirely feasible without a railroad connection with Lake Superior. The description which Eames gives of these* agrees with the red iron-rocks of the Huronian on the south shore of Lake Superior in the State of Michigan** The iron ores from Vermilion lake that have been brought to St Paul consist of a very pure, glittering haematite, of a steel-gray color.

It is probable that further search in Minnesota, on both sides of the zone of Laurentian rocks, will show the presence of Huronian iron ores. There have this year new surveys been made along the branch line of the Pacific railroad which runs along the Mississippi, extending further toward the north. I hope by this means to learn of interesting facts concerning the relationships of the Laurentian, Huronian and Silurian rocks in the upper portion of the Mississippi valley.

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*Report of Henry Eames 1866, p. 11.

**Credner: *Zeitschr, d. Deutsch, geol. Ges*. 1869 *s*. 527.

Besides the rocks and formations described above, I have marked upon the plate (Taf. VIII.) a small area south from the St. Peter river lying between Laurentian and Huronian rocks. This small area belongs, according to the investigations of Prof. Hall, to the Cretaceous formation. It is an old fresh-water basin in which has been found a considerable quantity of brown coal. As I have not examined the region myself, and I know nothing further about it, I shall give here nothing further concerning its appearance. Much effort has been made continually to find stone coal, or brown coal, in Minnesota, because in a large part of the State there is a lack of forest, and therefore of fuel. The small Cretaceous area on the Cottonwood river is as yet the only spot where real coal-bearing beds have been found in outcrop. All former discoveries have proved to be "drift coal," or erratic pieces in the diluvium.

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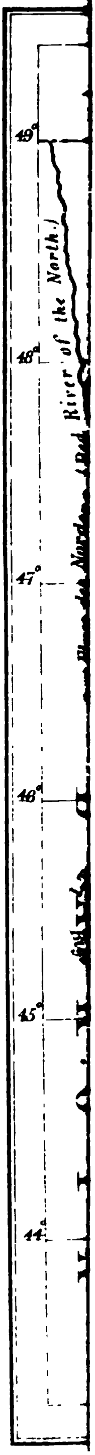

VII.

CHEMISTRY.

ANALYSES BY PROF. JAMES A. DODGE.

Analyses have been reported by Prof. Dodge of substances for the survey, from Nos. 69 to 83, both inclusive, of the Chemical Series. This list is from the following localities:

No. 69. Efflorescence on the surface of the ground (" alkali "), Sec. 14, Iona, Murray Co. Mus. Reg. No. 3936.

No. 70. Light-colored pipestone, or "chalk-rock" so-called, Palisades, Minnehaha County, Dakota, two rods east of the dam, in the plane of the pipestone. Mus. Reg. No. 3896.

No. 71. Light blue calciferous sandrock, from the lower part of the quarry of Maxfield and Mather, Mankato, showing non-hydrated (unoxidized) natural condition of the deeper beds of the Shakopee formation.

No. 72. Rice Point granite, No. 1 of the Survey Series. To determine the alkalies and the lime of the feldspar.

No. 73. Rice Point red granite, No. 1 B, of the Survey Series. To determine the alkali of the feldspar.

No. 74. Limestone, supposed to be hydraulic the equivalent of the shale layer at Maxfield's quarry, at Mankato. From the quarry of J. R. Beatty & Co., near Mankato.

No. 75. Light-colored, nearly white clay, supposed to be kaolinic, from the same place as the above, but probably Cretaceous.

No. 76. Water from Mille Lacs, needing filtering.

No. 77. Water of the Mississippi river from above Minneapoli about one mile, right bank.

No. 78. Water of the Mississipi river from below Minneapolis about one mile, right bank.

No. 79. Limestone of the Hudson river Group at Clinton Falls, near Owatonna, quarry of Lindersmith & Son.

No. 80. Limy sediment in a layer in the till, on Nicollet Island, Minneapolis.

No. 81 Ore supposed to contain copper, from near Beaver Bay. From T. 56, R. 8, S. W. ¼ Sec. 22, on North river, Wieland Brothers.

No. 82. Lime City limestone, Filmore county. Mus. Reg. No. 4099.

No. 83. Concretionary Cretaceous. Two Rivers, Morrison county. Mus. Reg. No. 4561.

ANALYSES.

No. 69, Chemical Series. Museum Reg. No. 3936.

"*Alkali*" Efflorescence, with soil adhering.

Whole substance powdered, air-dried, digested with water:—

	Per cent.
Dissolved by water	48.6
The residue digested with hydrochloric acid:—	
Dissolved additional	3.1
Total dissolved matter of the whole substance	51 7

Portion dissolved by water contained:

$$\left.\begin{array}{l}\text{MgO, 22.5 per cent.}\\ \text{SO}_3\text{, 44 8 ``}\end{array}\right\}\text{......67.3 per cent. sulphate magnesia}$$

Water	not determined
SiO_2, Fe_2O_3	traces
Organic matter	traces

The sulphate of magnesia was therefore not present in the form of Epsomite, as $MgO, SO_3, 7H_2O$.

$$\left.\begin{array}{l}\text{Would require MgO, 16.26 per cent.}\\ \text{`` `` SO}_3\text{, 32.52 ``}\end{array}\right\}\text{.........48.78 per cent.}$$

" " $7H_2O$ ....51.22 "

Portion (additional,) dissolved by hydrochloric acid contained:

SiO_2	18.6 per cent.	
Fe_2O_3, Al_2O_3 and phosphoric acid	58.3 "	(mainly Fe_2O_3)
MgO	20 5 "	
CaO	traces	
Organic matter	"	
Alkalies	"	

The residue, insoluble in H Cl, fused with carbonate of soda, gave:

SiO_2	75.8
Al_2O_3	11.1
Fe_2O_3	2.1

CaO	.86
MgO	.66
Organic matter	considerable
Alkalies	trace

This residue was in fact simply a dark soil, with fragments of roots &c.

Carbonic acid, and chlorides were almost wholly absent from the substance. Potash and soda were present in slight traces. Lime also was present in slight traces.

No. 70, *Chemical Series*, Museum Reg No. 3896.

SiO_2	50.4	per cent.
Al_2O_3	33.3	"
Fe_2O_3	2.8	"
CaO	0.6	"
MgO	0.17	"
Na_2O	3.5	"
K_2O	0.6	"
H_2O	9.6	"
	100.97	

The composition agrees fairly with that of Catlinite, which the rock resembles in physical properties except color, being white with tinge of yellow.

No. 71. Rock, a limestone of light-gray color, containing silica.

Ten grammes of the powered and dried mineral were digested with hydrochloric acid; a residue was left which weighed 1.552 gms., making 15.52 per cent. of the rock; the portion dissolved was therefore 84.48 per cent.

Analysis of portion dissolved by hydrochloric acid:—

Fe_2 O_3 with small amount of Al_2 O_3 and SiO_2	3.14	per cent.,	being	2.65	per cent. of whole rock.
CaO CO_2	55.47	"	"	46.86	" " "
MgO CO_2	39.73	"	"	33.56	" " "
	98.34			83.07	

Analysis of portion left undissolved by hydrochloric acid:—

SiO_2 -	77.9	per cent.,	being	12.1	per cent. of whole rock.
Al_2 O_3 -	19 24	"	"	2.99	" " "
CaO -	.34	"	"	.05	" " "
MgO -	.12	"	"	.02	" " "
Alkalies,	traces.				
Organic matter,	traces.				
	97.60			15.16	

It appears, therefore, that the rock is a magnesian limestone, with about 12 per cent. of silica and somewhat over 2½ per cent. of oxide of iron.

No. 72. A granitic rock of bluish-gray color, from which the feldspathic portion was selected (by mechanical means) as clean as possible. This portion, which was still, however, not wholly unmixed with other constituents of the rock, was analyzed with the following result:

SiO_2	49.78	per cent.
Al_2O_3 and Fe_2O_3*	32.36	"
CaO	11.55	"
MgO	1.43	"
K_2O	.41	"
Na_2O	3.39	"
H_2O	1.83	"
	100.76	

No. 73. A granitic rock of reddish color; this was analyzed as a whole, the grain being too fine to permit mechanical separation of its constituents.

SiO_2	75.78	per cent.
Al_2O_3	11.09	"
Fe_2O_3	2.09	"
CaO	.86	"
MgO	.65	"
K_2O	1.06	"
Na_2O	6.43	"
H_2O	1.82	"
	99.78	

No. 74. Rock a siliceous limestone. Digested with hydrochloric acid, a residue was left amounting to 19.67 per cent., the dissolved portion was therefore 80.33 per cent.

Analysis of portion dissolved by hydrochloric acid:—

SiO_2	.27	per cent.,	being	.21	per cent.	of whole	rock.
Al_2O_3	.15	"	"	11	"	"	"
Fe_2O_3	3.03	"	"	2.43	"	"	"
$CaO\ CO_2$	55.62	"	"	44.68	"	"	"
$MgO\ CO_2$	39.13	"	"	31.59	"	"	"
	98.21			79.02			

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*Note.—The amount of oxide of iron is quite small.

Analysis of portion not dissolved by hydrochloric acid:—

SiO_2	78.27	per cent.,	being	15.29	per cent.	of whole	rock.
Al_2O_3	18.33	"	"	3.61	"	"	"
CaO	.48	"	"	.09	"	"	"
MgO	.23	"	"	.04	"	"	"
Alkalies	traces.						
Organic matter	traces.						
	97.31			19.03			

A determination of water in the dried powder gave 4 per cent. (of whole rock.)

This is therefore a magnesian limestone, containing about 15 per cent. of silica, and but a moderate quantity of oxide of iron. It would appear likely to make a good hydraulic lime. No. 71 might also serve that use.

No. 75. A very light-colored clay, from Mankato. This was pulverized, without grinding up the particles of gritty matter that were to some extent intermixed with it; the powder was then mixed with distilled water, the suspended portion poured off and allowed to settle for a day or two; the settled portion was then collected, dried at 212°, and submitted to analysis by the common methods for silicates.

SiO_2	87.7	per cent.
Al_2O_3	7.24	"
Fe_2O_3	traces	"
CaO	.67	"
MgO	.07	"
K_2O	.49	"
Na_2O	3.17	"
Organic matter	traces	
Water	traces	
	99.34	

No. 76, of the Chemical Series. As received this water showed some turbidity, and had deposited a brownish sediment in the can. It was filtered, and a large quantity evaporated. In the course of this evaporation a similar brown flocculent matter separated out. It consisted of organic matter mixed with oxide of iron.

The residue from evaporation was submitted to analysis, and found to consist of the following substances, in the amounts stated:

Silica..........	3 85	per cent.	of total	residue from	evaporation.
Carb. lime.......	28.07	"	"	"	"
Sulph. lime.....	.95	"	"	"	"
Carb. Mag......	28.62	"	"	"	"
Oxide of iron....	1.26	"	"	"	"
Carb. potassa...	3.03	"	"	"	"
Carb soda......	11.09	"	"	"	"
Chl. sodium	.74	"	"	"	"
Organic matter..	22.40	"	"	"	"

The weight of the residue from a given quantity of water was found to be in the proportion of about 10 grains to the gallon. Reckoning the above specified constituents in grains per gallon, I found:—

Silica....................................	.2499	grains	per gallon
Carbonate of Lime..........................	3.1355	"	"
Sulphate of Lime...........................	.1051	"	"
Carbonate of Magnesia......................	3.1589	"	"
Oxide of Iron..............................	.1389	"	"
Carbonate of Potash........................	.3346	"	"
Carbonate of Soda..........................	1.2241	"	"
Chloride of Sodium.........................	.0817	"	"
Total Mineral matter.......................	8.4287	"	"
Organic matter.............................	2 4458	"	"
Total residue..............................	10.8745	"	"

In regard to the above figures, it is to be noted, that the amount of solid residue taken as a whole is not great, compared with that from many waters in this State; that the amounts of lime and magnesia (existing in the water as bicarbonates,) are but moderate; that sulphates and chlorides are almost wanting, and that the water is *alkaline*, by virtue of the presence of the carbonate of potash and soda. Upon concentration of this water, in a platinum dish, a ready and decided test is obtained by litmus and turmeric papers.

Further, it was found that nitrates and phosphates are absent.

No special examination of the organic matter was made.

Nos. 77 and 78 of the Chemical Series.

MINNEAPOLIS, MINN., March 13, 1882.

Prof. N. H. Winchell:

DEAR SIR:—I hereby report the results of my analysis of the water of the river made at your request with a view to determine what difference might show itself in the water above and below the city. Two samples were procured, at the same time and in the same manner, the one (No. 77,) at a point on the west bank about half a mile above the upper bridge, (Plymouth Ave.,) and above all apparent considerable sources of contamination, the other (No. 78) at a point, also on the west bank, below the brewery, at the small grove near the Fair Grounds.

These two samples of the river water have been submitted to precisely the same course of analysis. A quantity of each sample, amounting to eight litres—somewhat over two gallons—was evaporated to dryness, and the composition of the residue ascertained. In addition, the method of determining organic matter in water by the distillation process of Wanklyn, was applied to each sample of water.

The samples of water were procured by me about the 20th of December. They were immediately filtered, and kept in suitable glass vessels; that part of the work of analysis which needed to be done without delay, in order to avoid the effects of change in the water by keeping, was done. The remainder has been carried on with other work during great part of the winter.

1. Composition of the residue from evaporation of the water of the river above Minneapolis:—

Silica. SiO_2	.78256	grains	per gallon
Carbonate of Lime, $CaO\ CO_2$	6.39532	"	"
Carbonate of Magnesia $MgO,\ CO_2$	3.15307	"	"
Carbonate of Iron, $FeO\ CO_2$	.05504	"	"
Chloride of Sodium, $NaCl$	.16352	"	"
Potash, K_2O	.10162	"	"
Soda, Na_2O	.17462	"	"
Sulphuric Acid, SO_3	.16445	"	"
Nitric Acid, N_2O_5	traces		
Total Mineral matter in the residue	10.99020	"	"
Organic matter	1.40228	"	"
Total Min'l & Organic m't'r in residue	12.39248	"	"

2. Composition of the residue from evaporation of the water of the river below Minneapolis:—

Silica, SiO_2	.97090	grains	per gallon
Carbonate of Lime, $CaO\ CO_2$	6.13722	"	"
Carbonate of Magnesia, $MgO\ CO_2$	2.42827	"	"
Carbonate of Iron, $FeO\ CO_2$	.15560	"	"

Chloride of Sodium, NaCl..............	.18408	“	“
Potash, K_2O........	.15826	“	“
Soda, Na_2O...............................	.15126	“	“
Sulphuric Acid, SO_3.....................	.17462	“	“
Nitric Acid, N_2O_5.......................	traces,more than in No.1		
Total Mineral matter in residue......	10 36021	grains per gallon	
Organic matter..............................	1.96219	“	“
Total Min'l & Organic m't'r in residue	12.32240	“	“

3. Results of Wanklyn's method for determining the organic matter, in water from above city:—

Free Ammonia,	.0175	milligrammes per litre,
	or .0175	parts per million.
Albuminoid Amonia,	.0625	mgm. per litre,
	or .0625	parts per million.

4. Results of Wanklyn's method for determining the organic matter, in water from below city:—

Free Ammonia,	.0266	parts per million.
Albuminoid Ammonia,	.1550	parts per million.

I would like to call attention to the following points: First, the amount of matter, mineral and organic together, differs but little, in the residues from the evaporation of the two waters; but the amount of organic matter in the water from below the city is appreciably larger than in the water from above; on the other hand the amonnt of mineral matter is larger in the water from above. This latter result was to me wholly unexpected, but I am certain of its correctness. The water of the river below contains a little less carbonate of lime and magnesia than the water above. The difference, however, is wholly immaterial in a practical point of view, and may be accounted for by the influx of several creeks which bring in softer water than the river; also by the consideration that what lime finds its way into the river from factories and from masons' use, may serve to precipitate a small part of the carbonate of lime and magnesia that are in the river. Second, the difference in the amount of organic matter in the two samples, is quite material, in sanitary respects. The results of the determination of free ammonia and albuminoid ammonia are such as to place the water from above the city under the head of good drinking water, while that from below would be excluded from that class. It is to be observed that the water below shows somewhat more of all ingredients except lime and magnesia. In the case of nitrates, a quantitative determination could not be made. Qualitative tests showed somewhat more in the water below.

Very respectfully,
James A. Dodge.

Chemical Series, No. 79, *a Siliceous Limestone.*

Soluble in hydrochloric acid:—	per cent. of whole rock.	Insoluble in hydrochloric acid:—	per cent. of whole rock.
Silica	2.88	Silica	10.74
Oxide of iron	2.56	Oxide of iron and alumina	.80
Calcium carbonate	58.09	Lime	traces
Magnesium carbonate	19.90	Magnesia	.63
Alkalies	traces	Alkalies	traces
Sulphric acid	traces	Organic matter	not determined
	83.43		15.17

Chemical Series No. 80.

Calcareous rock, with iron pyrites distributed through it, and having a vein mainly of pyrites.

Main rock:—	Vein:—
Assayed ½ oz. gold $\frac{1}{10}$ oz. silver } per ton.	Assayed 1 oz. gold $\frac{1}{10}$ oz. silver } per ton.

Chemical Series No. 81, *Calcareous Layers in Drift, Nicollet Island.*

Soluble in hydrochloric acid:—	per cent. of whole rock.	Insoluble in hydrochloric acid:—	per cent. of whole rock.
Oxide of iron	2.69	Silica and silicates	35.53
Calcium carbonate	55.55		
Magnesium carbonate	4.95		
	63.19		

Chemical Series No. 82, *Limestone.*

Soluble in hydrochloric acid:—	per cent. of whole rock.	Insoluble in hydrochloric acid:—	per cent. of whole rock.
Oxide of iron	.73	Silica, etc	4.57
Calcium carbonate	70.53		
Magnesium carbonate	23.49		
	94.75		

Chemical Series, No. 83. A siliceous rock, to a great extent soluble in hydrochloric acid.

The rock was analyzed as a silicate, and its composition found to be as follows:—

Silica	19.81	per cent.
Alumina	52.43	"
Oxide of Iron	1.32	"
Calcium Carbonate	1.64	"
Soda	0.44	"
Water	23.23	"
	98.87	

In appearance this rock bears a considerable resemblance to compact gray limestone. Its hardness is a little less than that of limestone.

VII.

THE GEOLOGY OF THE DEEP WELL DRILLED BY C. C. WHELPLEY AT MINNEAPOLIS, AT THE "C" WASHBURN MILL.

BY N. H. WINCHELL.

(READ BEFORE THE MINNESOTA ACADEMY OF SCIENCES, JANUARY, 1882.)

I have just seen for the first time the record and drillings of this well (Dec. 1881), though the well was drilled some years ago, and the record and drillings were preserved at my request. The set sent me by Mr. Whelpley was lost in some way by being miscarried. The set on which these notes are based was encountered in the late moving of the effects of the Academy to new rooms, and I take the first opportunity to bring before the Academy what I deem important information concerning the strata that underlie the city, derived from an examination of this tube.*

In order to appreciate the bearing of the new facts on the geology of the region, it will be necessary to review briefly the former knowledge we had of the strata underlying the city. In the report of the geological survey for 1876, will be found a description of the geology of Hennepin county, by which it will be seen that the strata of the Lower Magnesian formation, represented by the Shakopee limestone extends under the St. Peter sandstone, occupying, conjecturally the surface of the western and central parts of the county. In the same report is a section of the deep well drilled in East Minneapolis, as furnished by the city engineer, Col. J. B. Clough, the designations of the strata being his, or of the party who drilled the well. The drillings of that well were not preserved, and it was found impossible to verify the des ignations by a comparison with them. It will be seen by that section that a "red limestone" was reported as penetrated, beginning at 234 feet and extending a depth of 102 feet farther. Under this is reported a "gray limestone." Below these, followed alternating, gray and white sandstones and shales with some sandy limestones, to the depth of 1074 feet. At that point the drill entered a red shale and sandstone which seems to have varied very little, if any, up to the time the work ceased at a depth of 1421 feet. This red shale and sandstone is the same formation in which the deep well stopped at Belle Plaine, and at other places in the State, the equivalent of the red shales of the Lake Superior region, the probable true Potsdam of the northwest. The well reported by Mr. Whelpley only goes to the depth of 205 feet, but as the drillings are presented with the recorded designations, it throws light on the geology of this part of the State which has a bearing on the proper interpretation of the deeper well of 1874. It is as follows, as given correctly by Mr. Whelpley:

---

*The drillings from the well were exhibited in a glass tube about three feet long, in the order of their places in the strata.

1.	Peaty black soil	2	feet
2.	Drift sand and stones	8	"
3.	Limerock, (gray and blue)	24	"
4.	Blue clay, (shale)	2	"
5.	White sandrock	44	"
6.	Yellow sandrock	7	"
7.	White sandrock	41	"
8.	Yellow sandrock	3	"
9.	Fine, white sandrock	22	"
10.	Yellow sandrock	5	"
11.	White sandrock	2	"
12.	Pipestone clay, reddish brown	2	"
13.	Coarse, white sandrock, (water to top of ground)	21	"
14.	Coarse, gray sandrock	17	"
15.	Hard, gray sandrock	4	"
16.	Red rock, (grit) penetrated only	1	"
	Total depth	205	"

On comparing these records it will be seen that the former well penetrated the two feet of pipestone clay at about the depth of 197 feet (of its own record,) without any notice being taken of it. This supposition is more probably correct than that this clay was not encountered, judging from a general looseness of designation that seems to pervade the earlier part of that record, and from the nature of the stratum and the proximity of the wells to each other, (about one-third mile apart). Furthermore, the record of white sandrock continues alike in each well down to the depth of 204 feet in one, and 234 in the other, which, calculating from the top of the Trenton limerock, makes the "red rock" in one well (Whelpley's) appear at 195 feet, and in the other at 191 feet. This shows that there could have been no such disturbance in the bottom of the ocean as to have changed the detritus and caused the omission of the pipestone clay in the East Minneapolis well; which is also indicated by the fact, that the pipestone clay was extensive enough to confine under hydrostatic pressure, a volume of water which rose at once to the surface of the ground on being pierced by the drill.

All the sands underlying the blue clay below the Trenton limestone are essentially the same in character, being composed of rounded grains of pure quartz. These grains differ in size, the largest being about as large as a mustard seed, and the smallest too minute to distinguish with the unaided eye. They differ in color somewhat, passing from a pure limpid glass to snowy white, and to a buff color, and to a smoky gray. These colors are not due to the cement in which they were enclosed, but to an actual difference in the quartz itself. This difference of color implies some change in the source of the material, and suggests the enquiry whether that change were not in the waters of the ocean rather than on the land. On the supposition that this pure quartz were the result of chemical precipitation, these different colors in the same formations are easily accounted for by such changes as may have occurred in the ocean by shifting currents, allowing the mingling of certain other substances in solution, with the precipitated silica so as to stain it as it is. On the supposition that this sand is derived from the preexisting land as a sediment of detritus, it is very difficult to understand how such a source of pure silica, almost absolutely free from other sand and impurities, could be obtained and disseminated as widely as this sand is known to extend, and to change its inherent color from time to time.

The pipestone clay No. 12, is undistinguishable from similar clay and shale seen in the Potsdam formation at Fond du Lac. It is somewhat schistose in one of the fragments, and also has spots of green similar to the green spots seen in the same clay at Fond du Lac. In its schistose character it resembles some of the schistose, soapy, clays seen in the formation at Baraboo, Wisconsin, and at Sioux Falls, Dakota. It generally is a shale and has an angular fracture. In the midst of one of the fragments is seen a little grit cemented by the same substance that cements the red rock of No. 16.

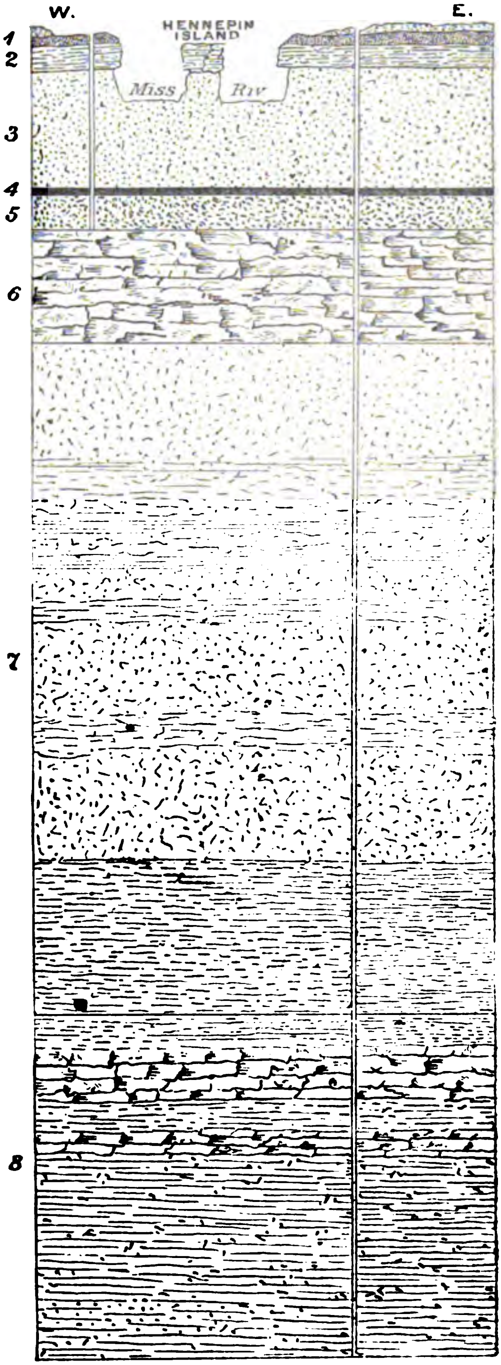
No. 16, which is the red limestone, so-called, of the East Minneapolis well, has not any of the qualities of a limestone. It is a coarse, red grit-stone, or arenaceous felsite, the grains being pure white silica, and the cement itself an amorphous red feldspathic substance seen to result in many cases from incipient metamorphism of the shales of the formation, disturbed by igneous eruptions, at Lake Superior. In other words it is a layer of the red quartzyte formation seen at New Ulm and at Baraboo, Wisconsin. The East Minneapolis well found this layer to be 102 feet thick, and to be underlain by other sands and shales, some of them being blue and gray to the thickness of 722 feet. Thus we find an interbedded red quartzyte in the Potsdam formation similar to those seen in the same formation in the Black Hills, and in several other places in the Rocky Mountain region.

I wish to call attention particularly to the occurrence of the red pipestone clay No. 12. This shows that the continuance of the disturbing causes, centering in and radiating from the region of Lake Superior, were still able to send a muddy agitation through the ocean sufficient to deposit a copious red sediment to the exclusion, almost entirely of the white quartz. This is within 127 feet of the bottom of the Trenton formation, and as nothing but white sandrock separates it from the Trenton formation, it demonstrates the absence of the entire Lower Magnesian formation. Thus we find the Trenton brought into contact with continuous white sandstone beds, which are shown, at least below 127 feet, to belong to the Potsdam formation. How much of this 127 feet may be of the St. Peter it is impossible to state, because there is no change in the character of the sandrock, but it is just as reasonable to suppose that the Potsdam continues upward to the Trenton at Minneapolis, in the same manner as it is reported to in Eastern Michigan, as to suppose the St. Peter sandrock, which is well known to exist between the Shakopee and Trenton further south, is brought on to the Potsdam, because in both cases it necessitates what might be styled an invisible unconformability between the Potsdam and the next overlying formation.

The question naturally arises—in what part of the Potsdam formation do these white sandstone layers belong? The answer must be, near the top, and probably quite at the top. This is evident from three considerations: First, there is an immense thickness of red sandstones and shales underlying them, as demonstrated by the East Minneapolis and by other wells in the State, which must belong to the formation, and which are the equivalent of the Lake Superior red shales and sandstones. Second, but a small thickness of sandstone supervenes before the Trenton formation is found overlying. These upper light sandstones must be older however than the layers which at Taylor's Falls lie unconformably on the trap rock, since there the formation had progressed far enough to admit of animal life, and dolomitic beds; and it is likely that the period of upheaval exhibited about Lake Superior had entirely ceased before the deposition of the Taylor's Falls sands and dolomites, setting off those and all succeeding layers into an era of comparative quiet.

In order to make the relations of these wells to each other, and to the geology of the region more evident, they are placed beside each other in perpendicular section, in figure No. 3.

FIG. 3.



Explanation of Figure 3.

1.	Drift	10	feet.
2.	Trenton limestone	24	"
3.	Light, crumbling sandstone (St. Peter?)	125	"
4.	Brown-red pipestone clay	2	"
5.	Potsdam sand	42	"
6.	Red quartzyte, Potsdam	102	"
7.	Light-colored Potsdam sand and shales	722	"
8.	Red Potsdam sandstone and shales, at least	347	"

VIII.

PAPERS ON THE CRUSTACEA OF THE FRESH WATERS OF MINNESOTA.

BY C. L. HERRICK.

I. *Cyclopidæ of Minnesota with notes on other Copepoda.*

II. *Notes on some Minnesota Cladocera.*

III. *On Notodromas and Cambarus.*

[NOTE.—The author feels it but justice to himself to state that part of the material here presented has been in its present form for some time. The work was begun in 1879.]

I. CYCLOPIDÆ OF MINNESOTA, *with notes on other Copepods.*

CALANIDÆ.

It eems that recent authors have sufficient ground for uniting the families *Calanidæ* and *Pontellidæ* under the single name; the value of these terms as subfamily names even may be questioned.

The family is represented in our limits by two genera and by three, or doubtfully more species.

The fifth pair of feet furnishes, by its modifications, the best criteria for distinguishing genera and species.

Genus DIAPTOMUS, Westwood.

Body elongated, compressed; head destinct from the thorax, anterior antennæ 25-jointed, those of the male geniculate on the right side; posterior antennæ and mouth parts as in *Calanus;* inner branches of all the swimming feet three-jointed except the first, which is two-jointed; fifth foot consisting of two unequal branches, prehensile; abdomen of male with five-joints, of female three-jointed.

DIAPTOMUS CASTOR.

(Plate I, figs. 1-7, Plate II, figs. 1-2, 16.)

Bibliography.

Monoculus castor, *Jurine.*

Cyclops castor, *Desmarest, Baird,* Mag. Zool. and Bot.

Cyclops cæruleus, *Muller, Latreille, Bosc.*

Monoculus cæruleus, *Fabricius, Manuel, Gmelin.*

Cyclops lacinulatus, *Muller, Ramdohr, Latreille, Bosc, Baird,* Trans. Beow. club.

Monoculus lacinulatus, *Manuel, Gmelin.*

Cyclops rubens, *Muller, Latreille, Bosc, Baird.*

Diaptomus castor, *Westwood, Baird, Baker.*

Cyclopsina castor, *M. Edwards, Baird, Claus.*

Glaucea rubens, *Koch,* Deutschlands Crust.

Glaucea cærulea, *Koch,* " "

Diaptomus castor, *Baird,* Brit. Entom.

Claus, Die Freilebenden Copepoden.

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The above bibliography is complete only up to a comparatively recent date; many notices may be found in recent literature.

The species which, after careful study, has been considered identical with the European *D. castor* is that described previously as *D. longicornis* with the remark that it might prove too near *D. castor*. *D. sanguineus*, Forbes, seems to be the same thing nearly. If the amount of variability admitted by Brady to prevail is allowable I see no reason for separating this species. It is very variable as to size and coloration, and even in the configuration of some of the parts, as antennæ, etc., a certain amount of latitude is to be given; (See plates of Claus, Zur Anatomie und Entwicklungs-geschichte der Copepoden Arch. f. Naturg. XXIV Jahrg., B I.) $\frac{14}{100}$-$\frac{18}{100}$; cm. in length. The following points are variable:—length of caudal stylets, structure and thickness of male geniculating antenna, size of claw of fifth male foot and spinous armature of feet. How far such variations may extend and how much they are dependent on peculiarities of habitat, etc., farther study must demonstrate. Some interesting facts meanwhile are suggestive. A second and gigantic form which may be known as

Diaptomus giganteus.

(Plate II, figs. 3-11-15.)

with the reservation that it is doubtfully of more than varietal value, was found under such circumstances as to suggest that it might be only a curiously magnified condition of *D. castor*. It is known to occur only in a small marshy pool of about two square rods extent and which annually dries up nearly completely. A few yards away is a second pool of a somewhat greater size and which less frequently dries up in summer. These two pools within the memory of the writer were united, but in the gradual dessication which has been observed in all Minnesota, they have been isolated. The former pool in June was found to contain ***mature*** males and females of the ***D. giganteus only***, few other copepods being present, while the other pool contained ***all stages*** of the common *D. castor*. There are no neighboring waters, the nearest being half a mile, and that (L. of Isles) has only *D. castor*.

The smaller pool soon completely dried up so that this form was, for the time, exterminated. The conclusion seems almost resistless that the stagnation incident to evaporation produced circumstances favorable to the development of this enlarged form. At any rate it is an interesting fact in local distribution.

This variety is $\frac{3}{10}$ cm. long or more, and is much the largest fresh water copepod known to me; it is a deep red in color and very compactly framed. Although so much larger than *D. castor*, it is almost impossible to find any structural differences. The male fifth foot differs somewhat, but mainly in the enlargement of one part at the expense of the others. The thorns on the feet are strongly pectinate and the larger ones bear short spines instead of bristles.

Diaptomus armatus, sp. n.

(*See accompanying cut.*)

A second form is imperfectly known, but presents some clearly marked distinctions which may have specific value.

Length about as *D. castor*; body slender; antennæ reaching base of abdomen only; female differing otherwise but little from *D. castor* (?); male considerably smaller; caudal stylets narrow; antennæ peculiar, shorter than the body; thickened portion of the geniculate antenna short; two last joints very short; one preceding the second long, bearing a hook at end; fifth foot with a very long claw to longer ramus (nearly as long as the ramus itself) with a tooth on the inner margin near the base, not perfectly arcuate, reaching, when extended, to end of caudal setæ.

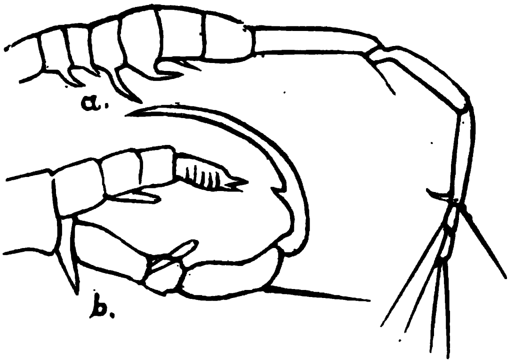

Fig. 1.

Diaptomus armatus.

a. part of male antenna. b. fifth foot of male.

Genus POTOMOICHETOR,* Gen. nov.

Cephalothorax six-jointed as in *Diaptomus*, but with the distal segment more evident; abdomen, in the male, five-jointed, *in the female*

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*River inhabitor.

four-jointed; antennæ *twenty-four* jointed, the right geniculated as in *Centropages* (=*Ichthyophorbia*); first pair of feet with the rami *both three-jointed*, like the following; feet of the fifth pair, in the female, like the preceding, but with a spine of the joint preceding the terminal one enlarged and divaricated somewhat as in *Centropages*; in the male, the right with a two-jointed outer ramus, the terminal joint of which is spined and bears near its base a blunt expression of its inner margin; outer ramus of left foot three-jointed, armed with unequal spines; inner branches smaller, similar, three-jointed; the terminal joint bearing curved spines; ovary and testes as in *Diaptomus*, with which the mouth parts agree in the main; eyes medium, confluent; no lower or secondary eye-spots.

POTOMOICHETOR FUCOSUS, sp. nov.

(Plate II, Figs. 12-14. Plate III, Figs. 1-8, 13-14.)

Rather slender, and in size, as well as general appearance, resembling the smaller forms of *Diaptomus castor*; antennæ rather stout, reaching but little beyond the feet, appendaged as in D. *castor*, in the male strongly geniculated, but somewhat variously so; the six joints preceding the terminal four are thickened; those preceding the joint or hinge are arcuate on the distal margins; the secondary antennæ are about as in Diaptomus; mandibular palp two-branched; the outer three-jointed, the inner two-jointed; the terminal joint of the shorter branch bearing seven setæ, of the other four, the proximal joint of the former with three stout spines; the maxillæ nearly like *Diaptomus*; the processes have respectively the following numbers of setæ: the basal plate eight, the small process at base of posterior branchial appendage one, the appendage itself twelve, terminal portion three groups, first containing nine, the second three and the third four or five, the upper of the anterior processes two and the lower three; fifth feet nearly like the others in size; the right in the male having the outer branch but two-jointed by the coalescence of the two outer to form an arcuate and deformed appendage armed at the end with three stout equal spines; corresponding branch of left foot three-jointed; the terminal joint bearing three unequal spines, each of the preceding but one; inner branches similar, three-jointed; terminal joint being short and armed with three short lanceolate setæ and three longer ones, two of which are curved so as to be slightly prehensile; fifth foot of female with both rami three-jointed; inner ramus much smaller; antepenult segment of the outer ramus extending into a large lanceolate process; ova sac long-elipsoidal reaching to nearly the end of caudal setæ.

This species prefers running water or estuaries of streams. Crow river, Meeker county, and a brook between Minneapolis and St. Paul.

NOTE ON CANTHOCAMPUS.

Claus says (*Freilebenden Copepoden*, p 121) that he could not find the coiled "shell gland" in Canthocampus, though it is described by Leydig. I have found it in a European species, (*C. minutus?*) and think it constant. Canthocampus also has a singular area of nervous hairs upon the forehead, and in the same situation, pits which seem rudimentary eye-spots and sometimes appear to be pigmented. The pentagonal area mentioned is bounded by a raised line.

CYCLOPIDÆ.

Contains five genera, viz.: *Thorellia*, *Cyclops*, *Oithona*, *Lophophorus* and *Cyclopina*; passing, by the genera *Misophria* and *Pseudocyclops*, into the *Calanidæ* or marine copepods. The affinities of these little studied genera need further study, as they are very interesting, the question being still open in how far the cyclopoid forms are altered by adaptation to saline habitat, if such an adaptation takes place at all.

The following is Brady's definition:

Cephalothorax ovate and usually much more robust than the abdomen; anterior antennæ seldom longer than the cephalothorax, those of the male alike on both sides and modified for the purpose of clasping: posterior antennæ branched (i. e. palpus wanting); palps of mandibles and maxillæ usually well-developed; foot-jaws mostly less developed than in *Calanidæ;* first four pairs of feet as in *Calanidæ*, fifth pair rudimentary, alike in both sexes, and usually one-jointed; ovisacs two.

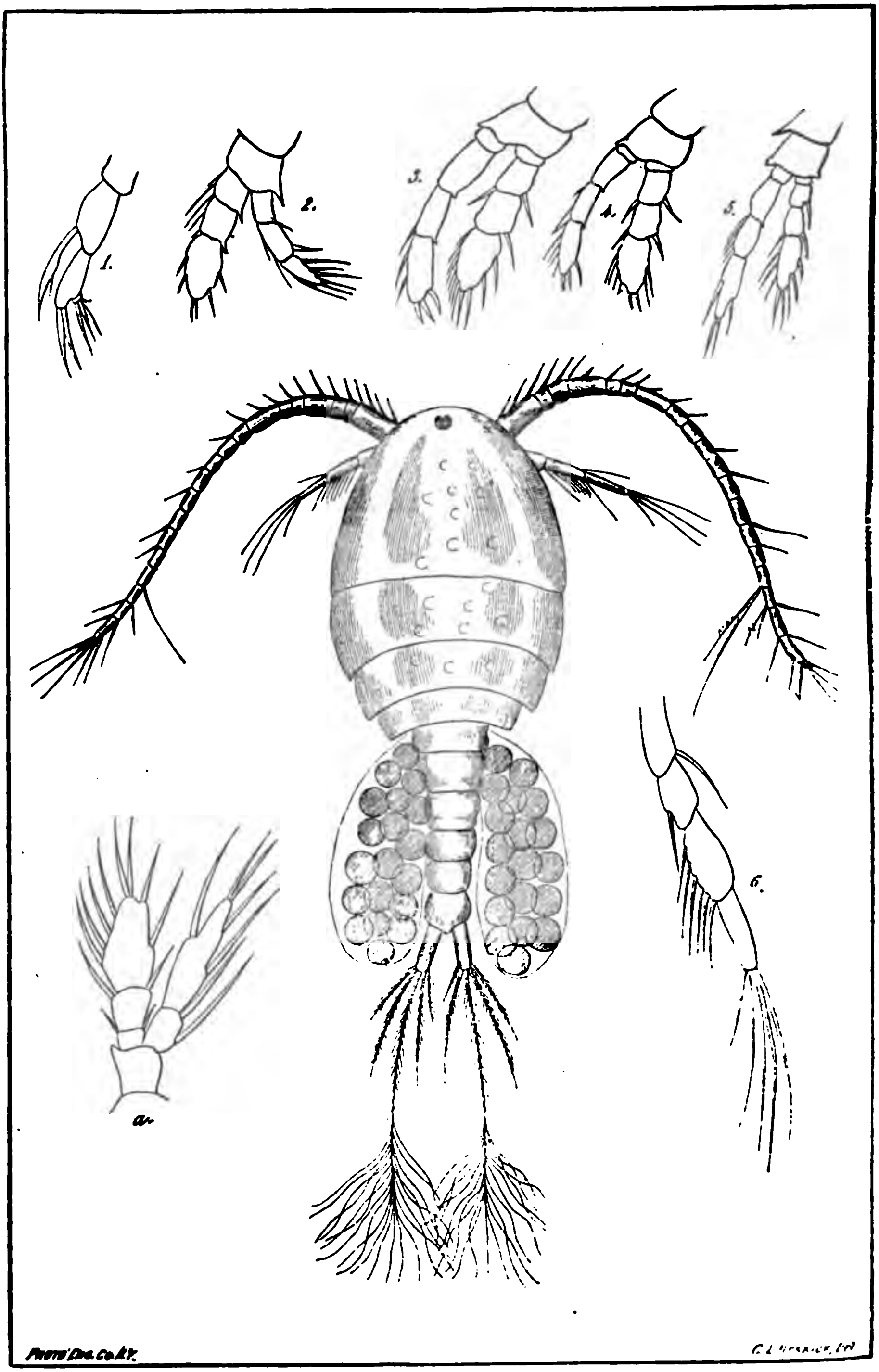

Fig. 2.

A Cyclops with abnormally pectinated caudal setæ.

Genus CYCLOPS.

Brady well says of this genus: "As regards discrimination of species it is, perhaps, the most difficult and puzzling of all the Copepoda." He also states that "the only safe rule in this state of things is to accept no specimens as types which do not show amongst them ova-bearing females." It is necessary, however, to limit the matter more closely, as will be shown farther on, for not only do immature females become fruitful even while the antennæ are yet incompletely developed, but the species are subject to a sort of dimorphism which it is interesting to parallelize with that in the males of *Cambarus*. The species are all fresh-water, so far as it is at present known, though it may be that salt-water forms exist under other names.

The characters of the family with some limitations apply to the genus.

The following species are probably but few of those which occur even in Minnesota, but they are so clearly defined, for the most part, as to be unmistakable and their description it is hoped will form a foundation upon which to lay later study.—Observations extend over a term of about four years.

Species with seventeen-jointed Antennæ.

CYCLOPS TENUICORNIS, Claus.

Bibliography.

Plate VI, figs. 1-11, 20. Plate V, fig. 14.

Cyclops tenuicornis, *Claus*, Das Genus Cyclops.
Die Frei-lebenden Copepoden.
Sars, Oversigt af de Indenlandske. Ferskvands Copepoder.
Uljanin, Reise in Turkestan.
Brady, British Copepoda.
Cyclops signatus, *Koch*, Deutschlands Crust.
G. O. Sars. Uljanin. Brady.
Cyclops coronatus, *Claus. Fric.*

We feel confident that the two forms distinguished by Claus as C. *coronatus* (=*signatus*) and *C. tenuicornis* should be united, as the only distinction which is at all reliable, is the knife-like serrated ridge on the last joint of the antennæ. The last joints are frequently longer in *tenuicornis* form, as are the stylets in *coronatus*, but this varies. In the same gathering (for in so far as we have observed they occur together where circumstances permit a full development,) the *coronatus*-form is larger and carries more numerous eggs. No young with the serrated antennæ have been seen, though searched for diligently. On the other hand young forms of *tenuicornis* abound, and we have seen females with incompletely grown antennæ with egg-sacs. In view of these and similar facts, we feel justified in considering *coronatus* probably a post-imago ot *tenuicornis.*

Cephalothorax broad; abdomen rather slender; antennæ reaching about to base of throax, attenuated at the end; terminal joint with a knife-like ridge; formula — ⏑ ⏑ — ⏓ ⏑ — ⏑ ⏑ ⏑ ⏑ ⏑ ⏑ ⏑ — — —; fifth foot composed of a long basal joint bearing a long spine and a terminal three-spined division; caudal stylets over twice as long as last abdominal segment; setæ all nearly terminal, inner one much longer than usual, length $\frac{23}{100}$ cm.

Common in America, England and continental Europe.

CYCLOPS ATER, n. sp.

(Plate III, figs. 9-12.)

Length about $\frac{21}{100}$ cm; antennæ as long as cephalothorax, $\frac{12}{100}$ cm., slender and gradually tapering; formula* — ⏓ ⏑ — — ⏑ — ⏑ ⏑ ⏑ ⏑ ⏓ ⏓ ⏑ — — —; terminal joints rather short; the last joint furnished with a knife-like ridge as in *tenuicornis*; second antennæ much as in *tenuicornis*; maxillipeds rather large; fifth foot one-jointed, armed with three subequal spines; abdomen rather short, last segment very short; stylets somewhat elongated; setæ rather short, lateral seta near the end; eggs pale; color deep blue or gray.

This beautiful and very distinct species is found in "Mud Lake" in Hennepin county, with *Cyclops signatus*. The large very dark cephalothorax and shortened abdomen make it conspicuous. The one-jointed fifth foot, shape of the operculum vulvæ in connection with the shortened joints of antennæ and characters of the caudal stylets, make the species sufficiently distinct from any other.

CYCLOPS INGENS, sp. nov.

(Plate IV, figs. 1-8.)

A large species perhaps too near *C. gigas*, or *C. brevicornis* Claus, but differing from the former as to the length of antennæ and stylets and in not having the distal margins spined (except in some cases?) and from the latter in size and arrangement of caudal setæ.

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*NOTE. The accent marks are used to signify that joints represented by them (counting from base) are either long —, short ⏑, medium ⏓.

Thorax large; abdomen rather slender; stylets rather slender with the lateral seta well towards the end; second and third setæ alone long, weakly pectinate; last joint but one of abdomen sometimes toothed along the distal, under margin; maxillipeds as in *C. gigas;* jaws with large teeth; antennæ very short not reaching to the base of the first cephalothoracic segment; formula — ⏓ ⏑ — ⏓ ⏑ — ⏑ ⏑ ⏑ ⏑ ⏑ ⏑ ⏑ ⏑ ⏓ ⏓; fifth foot two-jointed, the proximal joint very broad with a strong spine, second joint cylindrical with a long seta and a very short spine near the end; operculum vulvæ somewhat heart-shaped; egg sacs oval-elongated, reaching beyond the end of abdomen; length $\frac{40}{100}$ cm. including stylets and setæ.

This is one of the largest and finest as well as rarest of our forms and loves, as it appears, lakes having outlets.

Small forms with seventeen-jointed Antennæ.

CYCLOPS NAVUS, sp. nov

(Plate V, figs. 6-13-15-17.)

Closely related to *Cyclops pulchellus,* Koch, and to *Cyclops strenuus,* Fischer.

Rather slender; abdomen long; stylets about three times as long as last segment of abdomen; lateral seta rather stout; outer and inner terminal setæ minute; middle ones of moderate length; antennæ short, reaching barely to or but little beyond the end of first segment; formula — ⏓ ⏑ — ⏓ ⏑ — ⏑ ⏑ ⏑ ⏑ ⏑ ⏑ ⏑ ⏓ ⏓ ⏓; fifth feet two-jointed, terminal joint large, with two considerable spines; operculum vulvæ of peculiar shape; length $\frac{11}{100}$ cm. excluding setæ.

Quite abundant and perhaps passing into the following.

CYCLOPS PARCUS, sp. nov.

(Plate VI, figs 12-15)

Almost exactly like the last but not yet found in the same waters. Distinguished by the broad and short basal joint of the fifth foot which extends into a process carrying a spine, the slender second joint with a single long spine and a short thorn, and by the oval shape of the operculum vulvæ.

The caudal setæ are naked for about a third of their length. These distinctions seem constant.

Section with twelve-jointed Antennæ.

CYCLOPS SERRULATUS, Fischer.

(Plate V, figs. 1-5, Plate VII, fig. 10.)

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Lilljeborg, De crust ex ord. trib.
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Frei-lebenden Copepoden.
Fric, Die Krusten thiere Böhmens.
Uljanin, Reise in Turkestan.
Brady, British Copepoda.
? Cyclops minutus, *Claus*, loc. cit. (= young.)
? Cyclops macrurus, *Sars*, loc. cit.
? Cyclops spinulosus, *Claus*, loc. cit.

Typical Form.

Cephalothorax oval, compact; abdomen slender and short, suddenly enlarged previous to its union with the thorax; antennæ slender, reaching nearly, but not quite to the last thoracic segment; the last three joints are attenuated and furnish the most evident character of the species; formula — ⏓ ⏑ — ⏑ ⏑ ⏓ — ⏑ — — —; during life the antennæ tend to assume the form of a rude Z, the proximal four joints forming the base; antennules small, reaching about to the sixth joint of antennæ; jaws small with large teeth; the single segment of the fifth foot with three equal spines; egg sacs oval, as long as the abdomen; eggs few, dark; caudal stylets very long and slender, spined along the outer margin; lateral setæ small and approximated to the upper one; outer terminal seta short, spine-like, in life set nearly at right angles to the others, spined or beaded on one margin and bristled on the other; the next seta is as long as the abdomen, being somewhat exceeded by the following one; inner seta insignificant; upper seta very small; length less than $\frac{1}{10}$ cm.

A larger form occurs with an elongated body and abdomen and with extremely attenuated antennæ and caudal stylets, but it is not a variety induced by alpine habitat as suggested by Brady, occurring as a "post imago" form with the ordinary type. Claus' description of *Cyclops spinulosus* suggests that this form may be the basis of his species though the form of the male antenna is different from any yet seen. *Cyclops minutus*, Claus, is most certainly the young of some Cyclops, as is indicated both by the description and figures in *Die Freilebenden Copepoden*. Though placed among the twelve-jointed forms the antennæ are eleven-jointed. The fact that the females may have had egg sacs is no proof of their maturity as I have seen undoubted larval forms of *serullatus* with the sacs. Moreover *two-jointed branches of swimming* feet is a larval character. This is a cosmopolitan and very abundant species, occurring in almost all pools and lakes about Minneapolis. The form and structure of the stylets, antennæ and feet make it an easily recognized species.

CYCLOPS FLUVIATILIS, sp. nov.

(Plate VII, figs. 1-9.)

A very small and distinct species of the section with 12-jointed antennæ was found in an estuary of the Mississippi river, (also later in L. Minnetonka) with the following characters:—

Body elongated; thorax very long; abdomen slender; stylets about as long or longer than last abdominal segment; setæ all very short, not pectinate; lateral and dorsal setæ very small; outer one spine-like, short and stout, two middle short, inner one very small and inconspicuous; antennæ reaching nearly to the base of abdomen; formula, — ⏓ ‿ — ⏓ — — — — — — —; the three joints following the six basal are much elongated while the terminal ones are but moderately so, a character which is peculiar to this species; terminal segment slightly but evidently hinged, and together with pair preceding somewhat curved; feet with the terminal spines strongly toothed; fifth foot very small, one-jointed, bearing three small setæ; operculum vulvæ heart-shaped; egg sacs subquadrangular; eggs large; abdomen in the young much elongated; color deep indigo, length $\frac{3}{100}$ cm.

CYCLOPS ADOLESCENS, sp. nov.

(Plate VI, figs. 16-20.)

The form figured under the above name seems closely allied to *C. affinis*, Sars, from which it differs chiefly in the arrangement of the joints of antennæ.

The body passes without marked transition into the abdomen which is abnormally shortened; caudal stylets very short as is the last segment of the abdomen; setæ exactly as in *C. parcus* with which it was found; antennæ eleven-jointed; formula — ◡ — ◡ ◡ ⏓ ⏓ ◡ ⏓ —; a semi-circular series of spines upon the basal joint; fifth foot obsolescent, the three spines appearing to spring directly from the last thoracic segment which also bears a series of teeth; egg-sac reaching to base of abdomen, with rather numerous eggs; feet heavily spined on one margin; length $\frac{11}{100}$ cm., male $\frac{9}{100}$ cm.

This species, together with all others of this sort with eleven-jointed antennæ, is perhaps but an immature and abnormally modified form of some of the common species If this be true the rarity of these nominal species is explained. *C. minutus*, Claus, is certainly but a larval form, as is shown by the two-jointed branches of swimming feet.

Section with 8*-jointed Antennæ.*

CYCLOPS CRASSICORNIS, Müller.

(Plate IV, figs. 9-14.)

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Cyclops crassicornis, ***Muller,*** Entomostraca.
Sars, Oversigt Ferskvands Copepoder.
Uljanin, Reise in Turkestan.
Brady, British Copepoda.
pauper, ***Fric,*** Die Krustenthiere Böhemens.
? magniceps, ***Lilljeborg,*** De crustaceis ex ordinibus tribus, etc.

A small species characterized by its small size and the eight-jointed antennæ; body depressed and passing gradually into the rather uniform abdomen; first cephalothoracic joint large; abdomen rather slender; stylets of moderate length, spined along the outer margin somewhat as in *C. serrulatus*; outer seta lance-shaped, short; the next one as long as stylets and last two segments; the following one nearly twice as long; inner one very small; last joint of abdomen spined; the preceding one fringed on distal margin with weak setæ; antennæ short, not reaching the base of first segment; formula — ∸ ⏓ — ◡ ◡ ◡ ⏓; the basal joint with a semi-circular set of fine bristles, and with the following is furnished with pectinate setæ; second antennæ short; terminal joint short, with two curved, strong spines and other weaker ones; fifth feet small one-jointed with three unequal spines, bordered above by a spined plate of the last thoracic segment; length about $\frac{11}{100}$ cm. excluding setæ.

This species appears not to be very abundant, or at least from its small size it is not often encountered. A few particulars distinguish these western forms from the description given by Brady, among them being the spinous armature of the stylets, the bristles on the penultinate segment of the abdomen, pectinate bristles of the fifth feet, and the greater length of the abdomen, yet I see no reason for separating them. I have not seen the male and can not be sure that there is no further development, but the fact that the feet in this form are three-jointed, and its peculiar characters, clearly distinguish the species from any other known to me.

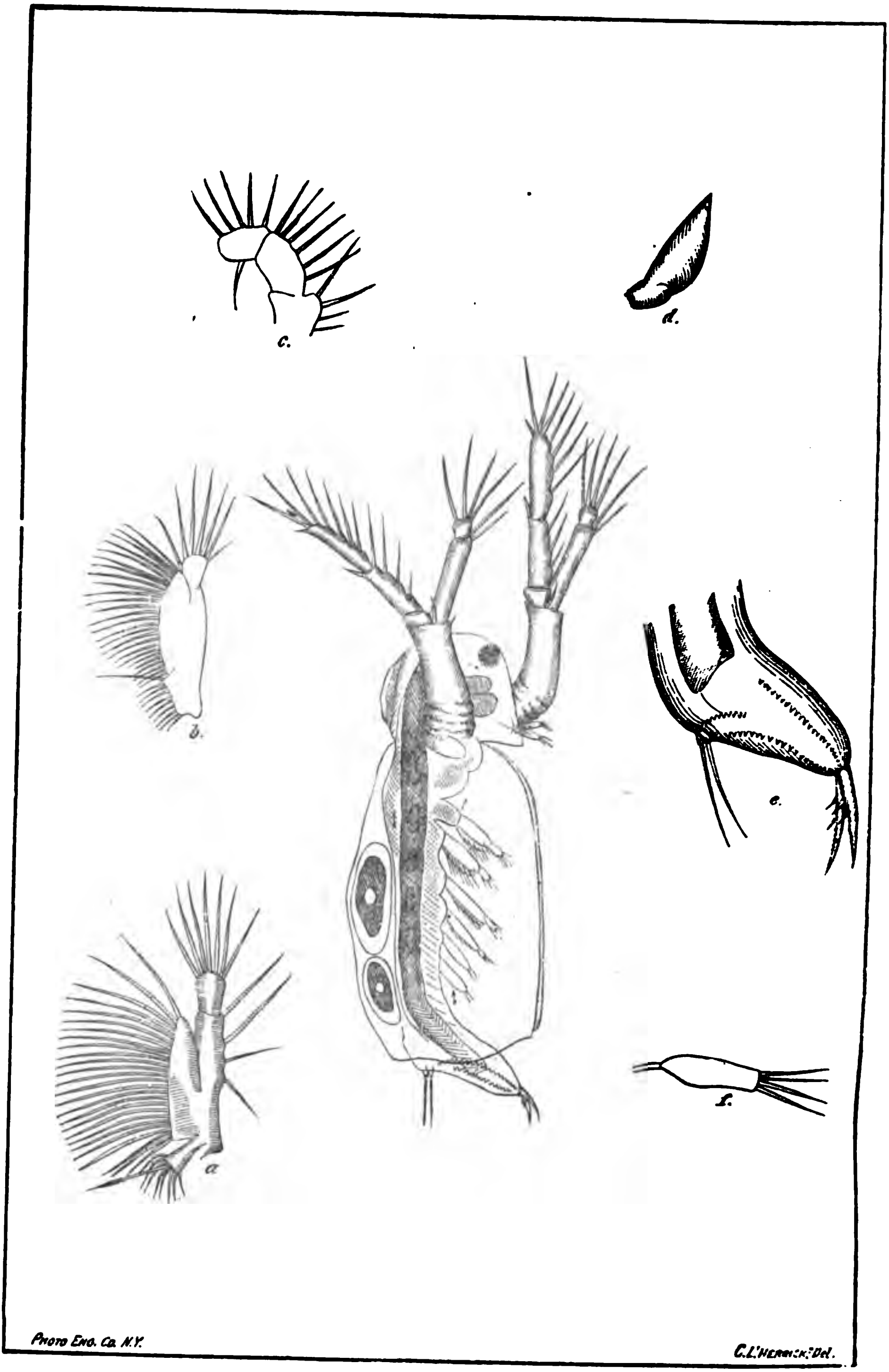

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Fig. 3, *Sida crystallina.*

II. NOTES ON SOME MINNESOTA CLADOCERA.

Tribe I CTENOPODA.

SIDIDÆ.

Antennæ of second pair with unequal rami, superior larger; last joints compressed and setose; intestine simple.

Of this family two species are certainly identified in America, both of which are abundant in certain favorable locations at the proper seasons. No species of the *Holopedidæ* are known to occur here.

Genus SIDA Straus.

Superior ramus of second antennæ three-jointed; posterior margin of post-abdomen with numerous spines (20-30.)

SIDA CRYSTALLINA, Müller.

(Fig. 3.)

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I note this cosmopolitan species, of which a nearly complete bibliography is given above, simply to mention that I have recently found for the first time specimens of *Sida* reaching the size mentioned by P. E. Müller ($\frac{30}{100}$ cm.)

In smaller pools, when present our *Sida* is much (often $\frac{1}{2}$) smaller, and only in L. Minnetonka does the species attain its.ultimate development.

Genus DAPHNELLA.

Superior ramus of second antennæ apparently 2-jointed, narrow; post-abdomen destitute of spines.

DAPHNELLA BRACHYURA Lievin.

(Plate VII, 11-16)

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(Compare also *D. expinosa,* Birge, Notes on Cladocera p. 3.)

The species of *Daphnella* found about Minneapolis, occasionally abundant, seems not to differ in any important character from European types of *D. brachyura* although I formerly regarded it as distinct (*D. winchelli.*)

Head less than one-half the body (about $\frac{27}{1000}$ cm. while body is $\frac{6}{1000}$ cm. long); eye about $\frac{1}{4}$ head; antennæ when reflexed extend a little beyond $\frac{3}{8}$ the length of body. Male $\frac{7}{100}$ cm. long; antennæ reflexed reaching base of shell; anterior antennæ extremely long; copulating organs reaching nearly to end of claws. Having carefully compared our specimens with the description and figures given by Birge for his *D. expinosa,* the evidence seems to indicate not only that they are identical but both are really *D. barchyura.* The distinctive characters of *D. expinosa* are a greater indentation between head and body, absence of caudal teeth, greater length of male appendages, and the opening of the vasa deferentia in the "instep" of these appendages.

The absence of teeth upon the post-abdomen is of even generic importance according to Sars, who gives it in his synopsis of genera as typical for *Daphnella*. In our specimens the claws are at least pectinate if not serrate, while the appendages of the male reach generally nearly to the middle of the claws. The relative length of these appendages and the antennæ of male is variable.

Tribe II, ANOMOPODA.

DAPHNIDÆ.

Rami of antennæ 3 and 4-jointed; feet of five pairs; intestine with anterior cœca not convolute.

Genus MOINA, Baird.

A transition between *Sididæ* and *Daphnidæ* is made through this genus.

Head separated from the body by a depression; macula nigra absent; antennæ of female large, movable, of male very long, curved; first foot of male with strong hook; valves short, truncate behind.

MOINA BRACHIATA.

We believe with P. E. Müller that this and *M. rectirostris* are identical. The most complete discussion of the merits of the three species (the above and M. paradoxa) is found in Weismann's paper, *Ueber einige neue oder unvollkommen gekannte Daphniden*, Grüber and Weismann, 1877, which see for bibliography and elaborate, not to say labored, distinctions. This species is not common, but when found (in muddy pools in late summer) frequently appears in great numbers. For embryology see *Grobben*, Entwicklungsgeschichte der Moina rectirostris.

Genus DAPHNIA.

This genus as limited by Müller is well distinguished from the remaining genera of the family--*Simocephalus*, *Scapholeberis*, *Ceriodaphnia* and *Moina*.

As remarked by Birge, this is not the typical representative of the group but is a very divergent member of it, worthy, probably, of forming a distinct section or sub-family. The most remarkable feature is one which appears in a comparatively early embryonic period and, in some cases, nearly disappears in later life This is the development of a long spine from the dorsal, posterior end of the shell. This is the real diagnostic test and has not yet been incorporated into the definition of the genus The occurrence of a crista is more variable apparently, but may be of some importance.

The following is suggested as a revision of the diagnosis:

Shell more or less oval or sub-quadrate and reticulate; head rounded anteriorly, but sometimes with a crest, prolonged below into a beak which is truncate posteriorly and bears the antennæ near the apex; upper dorsal corner of shell in young of both sexes and mature males prolonged into a long spine; the macula nigra is present but not always pigmented; the post-abdomen spined behind; opening of rectum at the end.

The female with two age-forms (heterogenetic and dimorphic); the second form frequently scarcely spined; antennæ small, not movable, furnished with sense-hairs; ephippium with two ova, separable from remainder of shell along the latero-median suture; the brood-cavity closed by more than two unequal processes of the abdomen.

Male with long movable (almost two-jointed) antennæ furnished with prehensile stylus; first foot bearing a curved claw; swimming antennæ very long; vas deferens opening at the end of post-abdomen. Embryo with second antennæ palpate; a curved appendage to shell which becomes the spine of adult.

DAPHNIA PULEX.

This species is mentioned here simply to remark concerning *D. pulex*, var *denticulata* of Birge, (Notes on Cladocera, p. 11, plate I, fig. 11,) that the European as well as all the American specimens of *D. pulex*, have a fine series of spines on the claws of the post-abdomen. A glance at Tafel XII, fig. 39, of the Zeitschrift für Wiss. Zoöl. Bd. XXXIII, with Weismann's plate of the end of the abdomen of this species, is sufficient evidence of this fact, though as the animal is a male and quite young, the spines are less evident; moreover the number of caudal teeth is known to be variable with age. Some other peculiarity must be found to give this varietal distinction validity.

DAPHNIA sp?

(Plate X, figs. 15-16).

From a cold marsh a gathering in June, 1882, contained several females like that represented by fig. 16. They were far from being abundant, however, and the pool contained no other Daphnia showing that it was unfavorable to the growth of these animals.

These females differ from *D. pulex* chiefly in their small size, ($\frac{14}{100}$ cm.) being the smallest Daphnia seen with an evidently mature appearance. The caudal spine is sickle-shaped; post-abdomen as in *pulex*; antennæ short; the animal beautifully clear and varigated by the brilliant contents of ovary, eggs and intestine. I hesitate to regard it as a destinct species.

Figure 15 represents a single specimen of Daphnia found with the above which was somewhat injured during its moult. This resembles *D. apicata*, Kurz, and *D. pellucida*, Müller, and is perhaps the male of the species represented by fig. 16. Our knowledge of the variations induced by environment is yet too meager to draw up definitions of species with certainty from a single gathering, but these forms are peculiarly interesting.

See also the accompanying figure, (fig. 4,). These forms merit closer study.

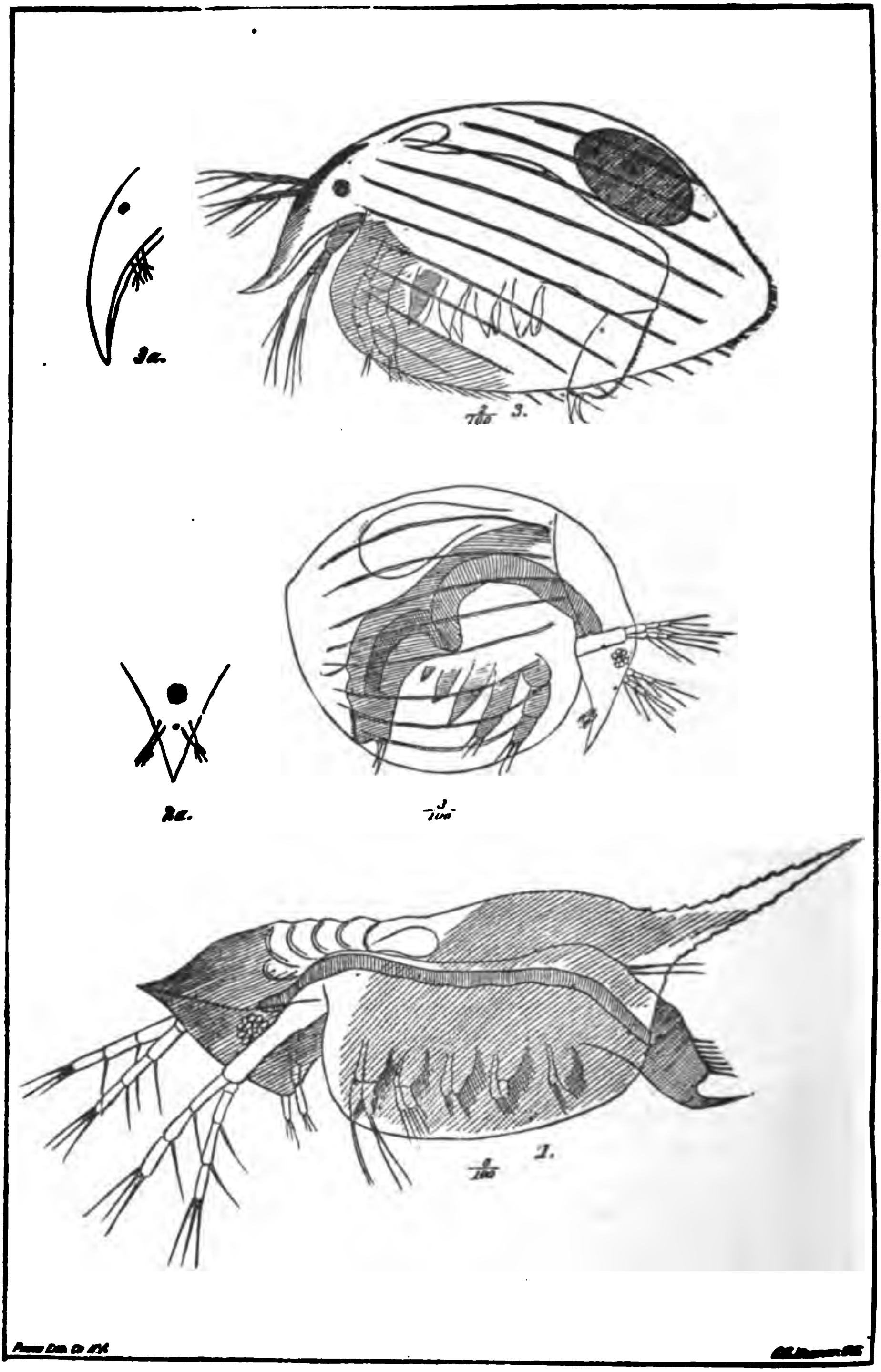

Fig. 4. *Daphnia longispina* (numbered 1) etc.

SCAPHOLEBERIS, Schödler.

In a former paper *S. mucronata* was reported from this locality with the remark that only the unhorned variety seems to occur here. A rather diligent search has failed to find var. *fronte cornuto*, though our waters have been carefully searched at intervals for several years and at different seasons. Birge quotes only this variety. However, the species is not common and the other form may yet be discovered. See Fig. 5.

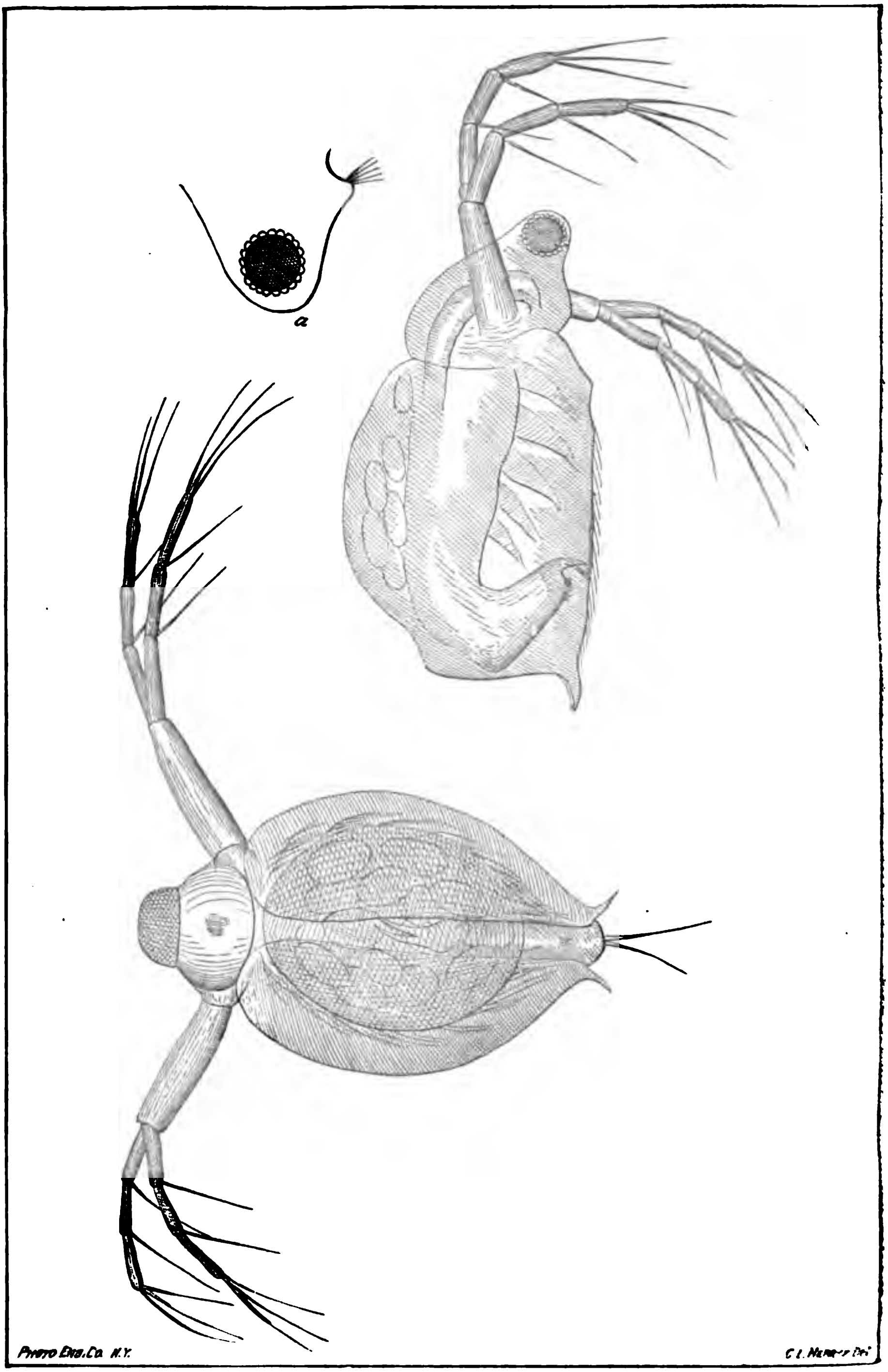
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Fig. 5. Scapholeberis mucronata.

A second variety or species has been found which differs somewhat from typical *mucronata*, but does not appear to be *nasuta* of Birge. Is not the latter a variety simply?

SCAPHOLEBERIS ARMATA var.? nov.

Length $\frac{7}{100}$ - $\frac{8}{100}$ cm.; much as *S. mucronata* in form; but the spines are greatly elongated in old as well as young individuals; and in individuals having winter as well as summer eggs, though the winter form seems to have longer spines which are nearly equal in some cases to the hight. Antennæ are short and transparent. The head is separated from the body by a marked depression; but is curved forward so that the beak lies generally between the valves. The antennules are of medium size. Nowhere reticulate (?) nor tuberculate. The shell is marked by impressed lines, especially anteriorly and below. The lower margin is straight and beaded anteriorly, but toward the base of the *mucro* are several long bristles which stop abruptly and are followed by a few very weak hairs. The post-abdomen has three teeth at the base of the claws, which are smooth.

This variety is much like *S. nasuta* of Birge, perhaps, but differs perceptably in several points. Most conspicuous are the greatly elongated spines and the short antennæ. This variety is about as large as *mucronata* but less than *nasuta*.

BOSMINIDÆ.

Genus BOSMINA.

First antennæ many-jointed; intestine straight. Sole genus of the family, and one which Kurz characterizes as "one of the most difficult of the genera of Cladocera."

There are three species known in the United States, two of which are found from the Eastern States to the Mississippi and westward, and are identical with European forms. The third may not prove distinct.

BOSMINA LONGIROSTRIS.

(Plate X, fig. 2.)

Differs from the following in having the terminal claws not toothed, and from *B. striata* in the shorter antennæ and reticulate shell.

BOSMINA CORNUTA.

(Plate IX, figs. 3–5.)

$\frac{35}{000}$ cm. long; shell reticulate with hexagonal meshes; antennæ curved backward and outward at the tip; claws with several teeth near the base. In embryonic specimens the antennæ are straight.

BOSMINA STRIATA, sp. n.

(Plate IX, fig. 1).

$\frac{25}{1000}$ cm. long; shell marked with anastomosing longitudinal striæ; antennæ very long; frontal seta about midway between eye and the sense-hairs of the antennæ: posterior inferior angle of shell spined as in the previous species.

The species resembles *B. maritima* greatly. The members of this genus have been little studied owing to their small size and comparative rarity, and it is even possible that some of the species will prove invalid.

All three of the above species were found in one gathering from Lake Minnetonka. Only one other locality (for *B. longirostris*) is known to me in this State.

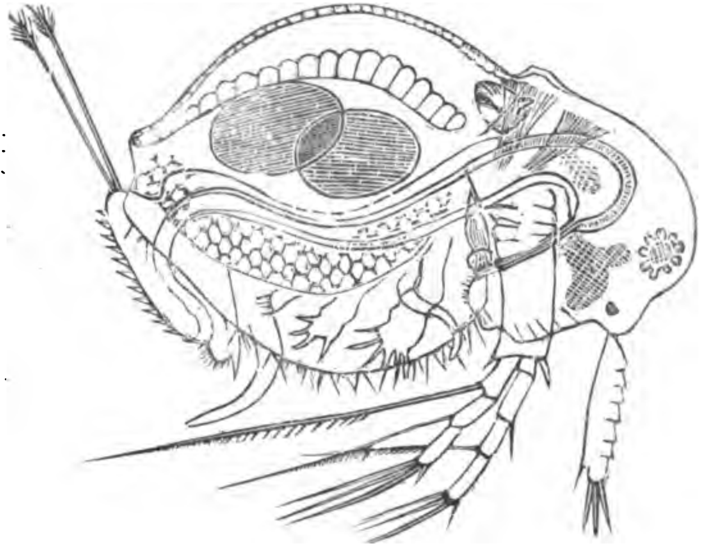
LYNCODAPHNIDÆ.

Genus MACROTHRIX.

Aside from *M. roseus* and *M. tenuicornis* (to which, perhaps, *M. agilis* of a previous report may be referred) a single species of macrothroid crustacean was collected at Lake Minnetonka, which is very remarkable. The specimen was apparently somewhat injured in moulting, and it is not possible to tell how much of its peculiar shape may be due to this fact, but some of its characters are sufficient evidence that it constitutes at least a new species.

It resembles in outline *Simocephalus vetulus*; the antennæ are very narrow and curved in a lateral as well as posterior direction; the second or swimming-antennæ are long as in other members of the genus; *macula nigra* present but small; eye small; post-abdomen short, triangular; claws pectinate; a dorsal sucking-disc is present;

length $\frac{10}{100}$ cm. For this species the name MACROTHRIX PAUPER is provisionally offered. (Plate VIII, fig. 1.)



(FIG. 6.)

MACROTHRIX TENUICORNIS, Kurz.

(FIG. 6.)

The description given by Kurz is very full and agrees very well. The peculiar arrangement of the movable spines at the margin of the valves is characteristic. I have observed that *this species forms an ephippium.* Müller says destinctly of the series of genera including *Macrothrix*, *Drepanothrix*, *Lathonura*, *Bosmina*, *Acantholebris and Iliocryptus*, "*Testae abjectæ corporis, nullo ephippio, ova hiberna obtegunt.*"

Bosmina is little related to the *Lyncodaphnidæ* and, however it may be with regard to other species, in *M. tenuicornis* an evident ephippium is formed in much the same way as in *Ceriodaphnia*. In *Daphnia* this egg-cover is produced by an alteration of part of the inner layer of the shell which becomes turgid and secretes a thick coating. The ephippium simply extends over the brood-cavity, being marked off from the rest of the shell by the median suture of the valves. In other *Daphnidæ* and in *Macrothrix* nearly the whole of the valves are thus modified. The shell of *M. tenuicornis* is normally smooth, but in the ephippial female, that portion of the inner layer of the shell bordering the egg-cavity and a little beyond is composed of large and very deep cells; the space between the outer and inner layers is much greater than in *Daphnia*.

Genus LATHONURA.

Although no species of this genus has been found in Minnesota, it is to be expected that it will eventually be discovered that the cosmopolite *L. rectirostris*, Müll. occurs in our limits. It occurs in Mass. according to Birge. The figures (Plate VIII, figs. 11-12) were drawn from specimens found in Leipzig, Saxony, illustrating a tendency, especially common in the *Lyncodaphindæ*, to abnormal growth of the spinous appendages—in this case the anal setæ.

Genus ILIOCRYPTUS.

A genus represented by a single European species. Our form may differ somewhat in some respects from the generic diagnosis, but certainly belongs here. There are no anterior cœca (as indeed there are probably not in the European *I. sordidus* though so stated by Müller,) and no permanent cœcum or dilation of the intestine before the rectum. The marginal spines are straight, long and movable without branches.

ILIOCRYPTUS SPINIFER sp. nov.

(Plate VIII, figs. 2–6.)

Short; depth nearly equaling length of body excluding head; rounded behind; free edges of valves beset with slender ciliate spines which are not branched; antennæ exactly as those of *I. sordidus*, as is the post-abdomen, save that the anus seems to be situated higher; ova three or more.

This species occurs in Silver lake, east of Minneapolis. It swims quite well, while of the European species it is said this is not the case. It does, however, frequently load itself with filth so as to be too heavy to swim freely.

LYNCODAPHNIA, Gen. n.

(Plate IX, figs. 1-3.)

Form much as is species of *Alonella*, etc., truncate behind; superior antennæ like *Macrothrix*, attached movably to the end of a blunt prominence beneath the head; second or swimming antennæ slender; four-jointed ramus with three long setæ at the end of terminal joint where is also a stout spine; joint following the basal joint also with a spine above; middle joint unarmed (?); three-jointed ramus as in *Macrothrix*; the basal segment armed with a much elongated seta; eye relatively small; pigment fleck present; *intestine twice-convoluted*, expanded in front of colon, opening in the "heel" of the post-abdomen; post-abdomen slender, sub-triangular, margined behind with a double series of spines; terminal claws large, straightish and furnished with a long and short spine near the base, also very minutely feathered behind; shell marked alone by the so-called "stuzbalkein;" lower margin with movable spines.

Few more interesting forms have been noticed than this, since it combines the characters which have hitherto been considered as very clearly forming the boundaries of distinct families.

Kurz says, (*Dodekas neuer Cladoceren nebst einer kurzen Uebersicht der Cladocerenfauna Böhmens*, p. 30:) "Keine Cladocerenfamilie bildet eine so streng in sich abgegrenztes natürliches ganze, wie eben die Lynceiden," and this even after recognizing the relationship of *Macrothrix* and *Lathonura* to the Lynceids by placing them in the sub-family *Lyncodaphniæ*. The form for which I propose the name *Lyncodaphnia* is quite as much like such forms as *Alona* and related Lynceids, as any species of the *Lyncodaphninæ*, while at the same time the characters of antennæ and head are almost identical with *Macrothrix*. This furnishes but another example of the fact that possibility of distinguishing families and genera lies alone in the meagerness of our knowledge.

LYNCODAPHNIA MACROTHROIDES, sp. n.

Form sub-rectangular, greatly elongated; length $\frac{12}{100}$ cm., hight $\frac{5}{100}$ cm. or less; first antennæ long and slightly curved, bordered behind by about ten spines and terminating in two unequal sword-shaped spines and several sense-hairs, about $\frac{17}{1000}$ cm. long; swimming antennæ very slender as in *Macrothrix*, $\frac{6}{100}$ cm. long; head not marked off by a depression from the body, small and extending below into a blunt elevation for attachment of antennæ; labrum rather large; eye small; macula nigra conspicuous but not large; anterior feet strongly armed with curved spines. The intestine anteriorly is furnished with cœca, is twice convoluted, broadened before entering the rectum and opens a little distance beyond the oval seta in the heel of the post-abdomen; post-abdomen rather slender, toothed behind with a double series of about twelve prominences, becoming distally sharp, strong teeth; terminal claws curved at the end only, pectinate and bearing two unequal but large processes near the base; eggs much like those of *Macrothrix*.

Occurs in Lake Minnetonka, Hennepin Co., Minnesota, rare.

LYNCEIDÆ.

But few of this large family, furnishing the majority of the Cladocera fauna of any locality and at any time of year, have been carefully studied here. The following are mentioned as of particular interest:

SUB-FAMILY EURYCERCINÆ.

The single species *Eurycercus lamellatus* which constitutes this sub-family has been mentioned and figured in a previous paper. It is quite abundant and constant.

Eurycercus is connected with the true Lynceids by the following genus which has quite as many affinities with *Eurycercus* as any Lynceid. Schödler seems to be the only writer who has laid sufficient stress upon this similarity, though it may not be best to unite the two forms as he did.

Genus LEYDIGIA, Kurz.

LEYDIGIA QUADRANGULARIS, Leydig.

(Plate VIII, 7-8.)

The Minnesota species is referred to *L. quadrangularis* under the belief that there is no specific distinction between that species and *L. acanthoceroides*, Fischer.

Our form does not agree in every particular with the very minute description of Kurz and does agree very well with what is said of *L. acanthocercoides*. However, Kurz says of the latter species, "Diese Art is von der vorangehenden (*L. acanthocercoides*) im weiblichen Geschlecht schwierig zu unterscheiden," and immediately adds that the male is unknown to him. In P. E. Müller's time both males were unknown. Müller says of *acanthocercoides*, "ungues caudales inermes," of *quadrangularis*, "ungues caudales dente minuto." Kurz on the other hand says of the former, "der Basaldorn ist kurz," of the latter "die Endklauen haben keinen Basaldorn."

Our species has no spine on the claws, and has a small spine on an eminence on the dorsal part of the abdomen, as well as two ciliated prominences between it and the oval setæ; length $\frac{9}{10}$ cm.; color red.

Silver Lake, east of Minneapolis.

CAMPTOCERCUS MACROURUS.

(Plate X, fig. 9.)

This large species occurs rather sparingly at Lake Minnetonka. It is probably widely distributed in America as well as Europe. It is known in Cambridge, Mass. and Madison, Wis. (Birge).

CAMPTOCERCUS ROTUNDUS, sp. nov.

(Plate VIII, figs. 9–10.)

Short, quadrangular, dorsally nearly uniformly arched; antennæ of first pair long, curved outward, with long terminal bristles; abdomen long, nearly uniform in width; teeth of post-abdomen few, inconspicuous; terminal claw nearly straight; basal spine large; the claw also has a series of spines beginning a little beyond the middle and shortening proximally; length $\frac{7}{100}$ cm. This resembles *C. rectirostris*, Schödler, a little in outline of body but the head is like *C. macrourus*, except that there is a slight beak directed anteriorly (not shown in the figure); the post-abdomen is much as in *C. macrourus*, but is less heavily spined. In size it is somewhat less than *C. lilljeborgii*, and the shortest species known to me.

ACROPERUS sp?

(Plate X, fig. 10.)

Resembles *Camptocercus macrourus* greatly. Are these two genera really distinct?

PLEUROXIS PROCURVUS, Birge.

(Plate X, fig. 6)

Very characteristic. Found in Shady Oak lake, and elsewhere abundant.

PLEUROXIS UNIDENS, Birge.

A species which agrees best with this is quite abundant. It is, however, always of a deep brownish color, and the beak is long and curved inward; it may be distinct.

A third form of *Pleuroxis*, probably *P. denticulatus*, Birge, is abundant also.

GRAPTOLEBRIS INERMIS, Birge.

(Plate X, figs. 8, 11–12.)

Resembles *Alona testudinaria* very closely; the antennæ are peculiar; each joint has a median circlet of fine bristles; the upper ramus is terminated by two long setæ, one shorter seta and a stout spine; the joint preceding the terminal one has a stout seta. The description given by Birge is otherwise complete. Lake Minnetonka.

CREPIDOCERCUS SETIGER, Birge.

This is exceedingly rare, and by reason of its small size, difficult to distinguish. It has been encountered but once in Minnesota. This species is easily recognized when found, and though our specimens differ a little from the figure given by Birge, they are doubtless the same.

ALONA OBLONGA, P. E. Müller.

The specimens examined differ somewhat from Müller's description. The caudal claw is pectinate; the spine at its base is large and covered with a tuft of hairs; the teeth of post-abdomen are large, emarginate and hairy; otherwise the agreement is very close; length .07 cm. Found in Grass Lake, Richfield.

TRIBE III ONYCHOPODA.

POLYPHEMIDÆ.

POLYPHEMUS PEDICULUS.

(Plate IX, figs. 4–6.)

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I have collected from various sources what I could of the extensive bibliography of this, the sole species of the genus. One of the most characteristic and pleasing figures given is that of Weismann in his article on the "Schmuckfarben der Daphnoiden," though we believe that author in the wrong in the deductions made. Our specimens rarely approach the brilliancy of the plate, and there seems to be a more legitimate way of explaining these secondary colors than by sexual selection. This species is never abundant, nor is it very rare; found in Lake Minnetonka, and the larger lakes with their outlets.

III *On Notadromas and Cambarus.*

CYPRIDÆ.

This group is one of the most difficult and perhaps least studied. A number of species some of which, perhaps most, are new, occur in Minnesota, and among them is a *Cypris* which exceeds any described form in size. I only mentiôn one genus which is cosmopolitan.

NOTADROMAS, Lilljeborg.

Carapace differing in male and female; eyes two; antennæ similar to those of *Cypris*, the superior having seven and the inferior six joints; setæ of inferior antennæ reaching beyond the apex of the terminal claws; second pair of jaws without a branched appendage, in the male pediform; abdominal rami rather long.

NOTADROMAS MONACHUS, Müller.

Bibliography.

Cypris monacha, *Muller, Latreille, Bosc, Demorest, Baird. Edwards.*
Monoculus monachus, *Gmelin, Manuel. Fabricius, Rees, Jurine.*
Notodromas monachus, *Lilljeborg*, De Crust. ex ord. trib.
Brady, British Ostracoda.

Females of this widely distributed species were collected near Minneapolis, presenting in as far as could be seen no material points of distinction from English types.

DECAPODA.

But two species of *Cambarus*, *C. virilis.* Hagen, and *C. signifer*, occur in Hennepin county, except, perhaps, in the Mississippi. The following localities for the former species are known in the State: Mississippi river, Minnehaha creek, Bassett's creek, Cedar lake, Lake Minnetonka, Lake Independence, Lake Superior.

It is possible to recognize three age-forms in the males of this species.

A. The immature male (II Form, Hagen). Reaching two to three inches in length, this stage has the chelæ proportionally smaller, and the spinous armature less developed: the first abdominal foot is simply bifid at the end.

B. (Form I of Hagen,) usually over two and one-half inches long; chelæ larger; branches of abdominal foot destinct; inner branch grooved but lance-linear.

C. Very large (four inches); inner branch of abdominal foot spatulate at end; the two rows of tubercles on the inner margin of the "hand" with six or seven in a row instead of five.

Male	of Form	II, A stage,	2½ in. long,	Chela.	7 in.,	thumb	.49 in.
"	"	I, B stage,	2½ in. long,	"	1 in.,	"	.6 in.
"	"	I, C stage,	4 in. long,	"	1.8 in.,	"	1.1 in.
"	"	II, A stage,	3 in. long,	"	1.2 in.,	"	.75 in.

It will be seen from the above that size does not govern the transition from the first to the second form entirely. This differs either in different localities or at different seasons of the year. A large gathering from Cedar lake showed no specimens of the form I, while a similar gathering at Lake Independence contained but one of the form II. A male from Minnehaha creek had rudiments of a third tooth on the carpus of the left claw, thus indicating an approach to Hagen's Var A.

CAMBARUS SIGNIFER sp. nov.

(FIG. 7.)

A slender, graceful species of rather marked colors, belonging to the section having a hook on the third pair of legs but not on the fourth. The rostrum is not carinated nor toothed at the apex; acumen moderate, lateral borders curved, moderately excavated. Cephalothorax arched and not depressed above, densely punctate; areola linear; chelae slender, straight; thumb deeply excavated on the inner margin for the proximal one-third; opposite finger with an impressed groove on the inner but not on the outer margin.

Male, I Form. Color reddish-(crimson) brown, not obviously figured; tail lighter; fin chestnut, marked with gray: chelæ bright crimson below there are green markings on the body and legs, and some yellow below.

The hands are rather narrow and straight, while the "thumb" is deeply excavated for one-third its length, and the notch thus formed is armed with three or four teeth; the finger opposite has a tooth half way from the apex, and others near the base; the ange at base of thumb is densely hairy. The penultimate and previous joint of second foot bears a very dense and thick tuft of hairs on the inner margin which it particularly noticeable in living specimens. The antennæ are short about as long as the thorax when reflexed.

The first pair of abdominal feet resemble those of *C. virilis* somewhat, but are stouter and less divided. They are more strongly curved than in *C. propinquus.*

The laminæ of antennæ are much as in *C. troglodyles* but wider at the base.

The second form has the two branches of the abdominal foot united almost to the end. The young males have the chelæ greenish-blue and mottled, while the coloration of the body is like the females.

The females have shorter chelæ, and broader abdomen marked with chestnut bars on each segment above.

A male 3.3 in. long was still in form II, while another 3.2 in. long was in the form I. Found by hundreds in a shallow pool known as Grass Lake, in Richfield, Hen. Co.

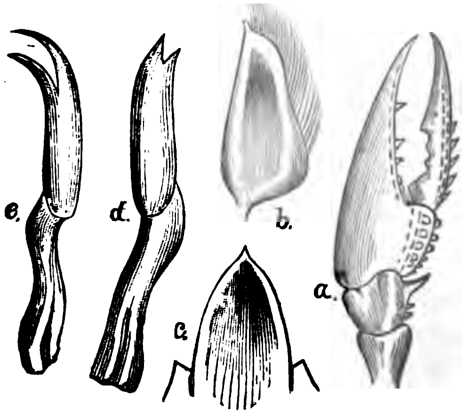

Fig. 7.

Cambarus signifer.

a chela. *b* lamina of antenna *c* rostrum. *d* abdominal foot of form II. *e* abdominal foot of form I.

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ERRATA.

Page 42. Third line—for *sawthuth*, read Sawteeth.
56. Twelfth line—for *tubes*, read talus.
65. Twenty-third line—for *tract*, read trail.
67. Seventeenth line—for *vein*, read rim.
89. Twelfth line—for *land*, read hand.
99. Twenty-fourth line—for *Merabi*, read Mesabi.
119. Twenty-ninth line—after *trilobite*, add a foot note, as follows: **Conocephalites minor Shu.?*
133. Twenty-sixth line—for *conspicuous*, read calciferous.
134. Fifth line from the bottom—for *Sendrogroptus*, read *Dendrograptus*.
147. Twenty-sixth line—for *oppressed*, read appressed.
175. Sixth line—after *p.* 417, add in 1871.
187. Thirtieth line—for *have*, read has.
191. Eleventh line—for *steepry*, read steeply.
239. Fifteenth line—for *apicata*, read *spicata*.

PLATE I.

Sketch Map of the Canoe-trail from Ogishke Muncie Lake to the mouth of Poplar river.

Route of N. H. Winchell in 1879.

PLATE I. 10th Annual Report   Geological and Natural History Survey of Minnesota.

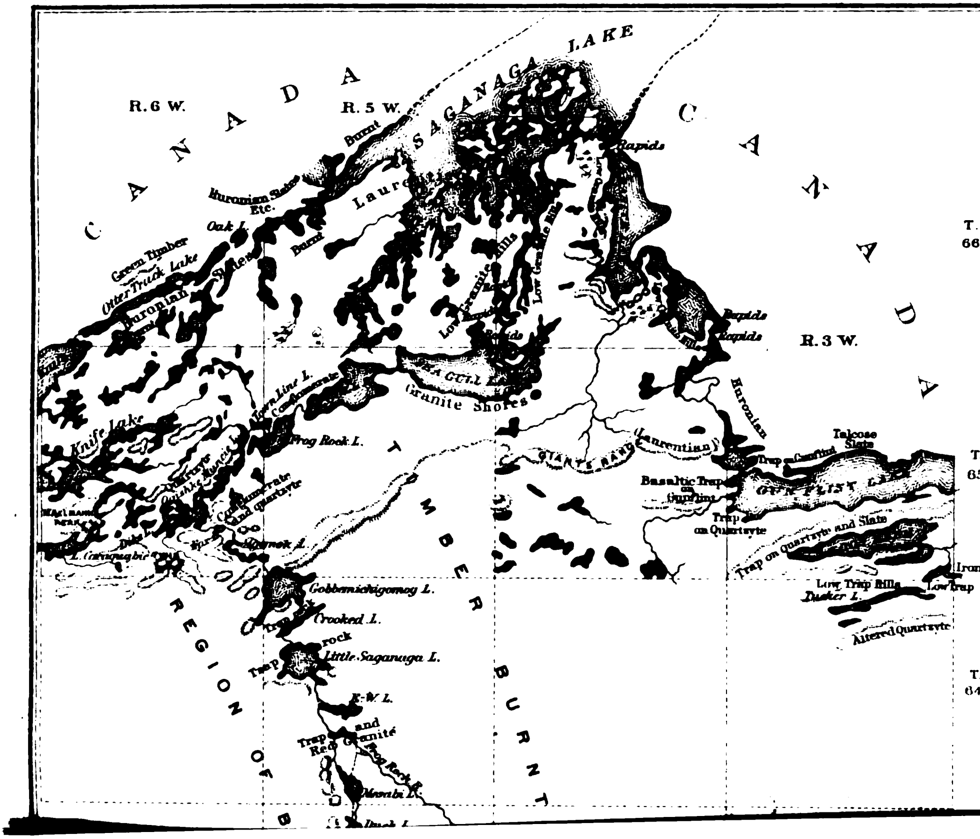
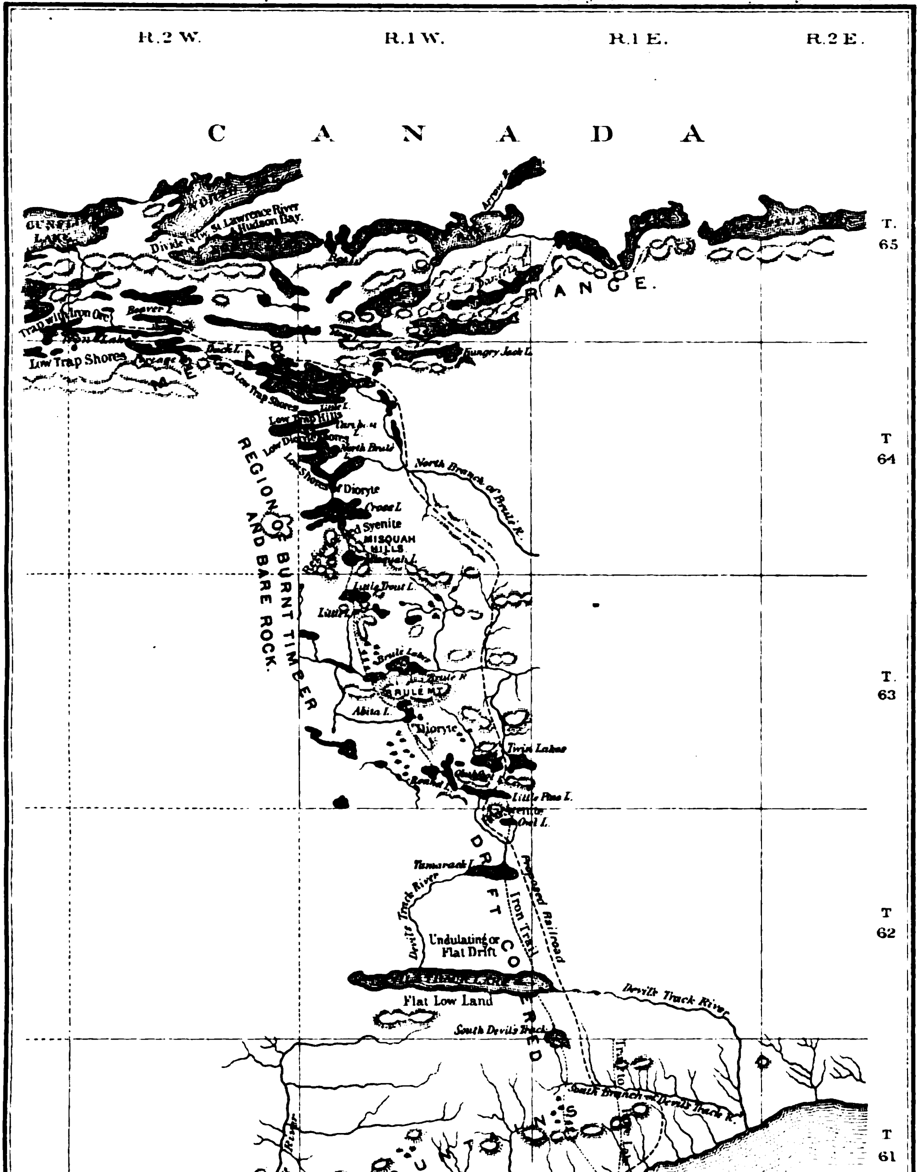


PLATE II.

Sketch Map of the Iron-trail for Canoes from Grand Marais to Iron Lake.

Route of N. H. Winchell in 1879.



From Grand Marais to Iron Lake Route of N H Winchell in 1879.

JULIUS BIEN, LITH. N.Y.

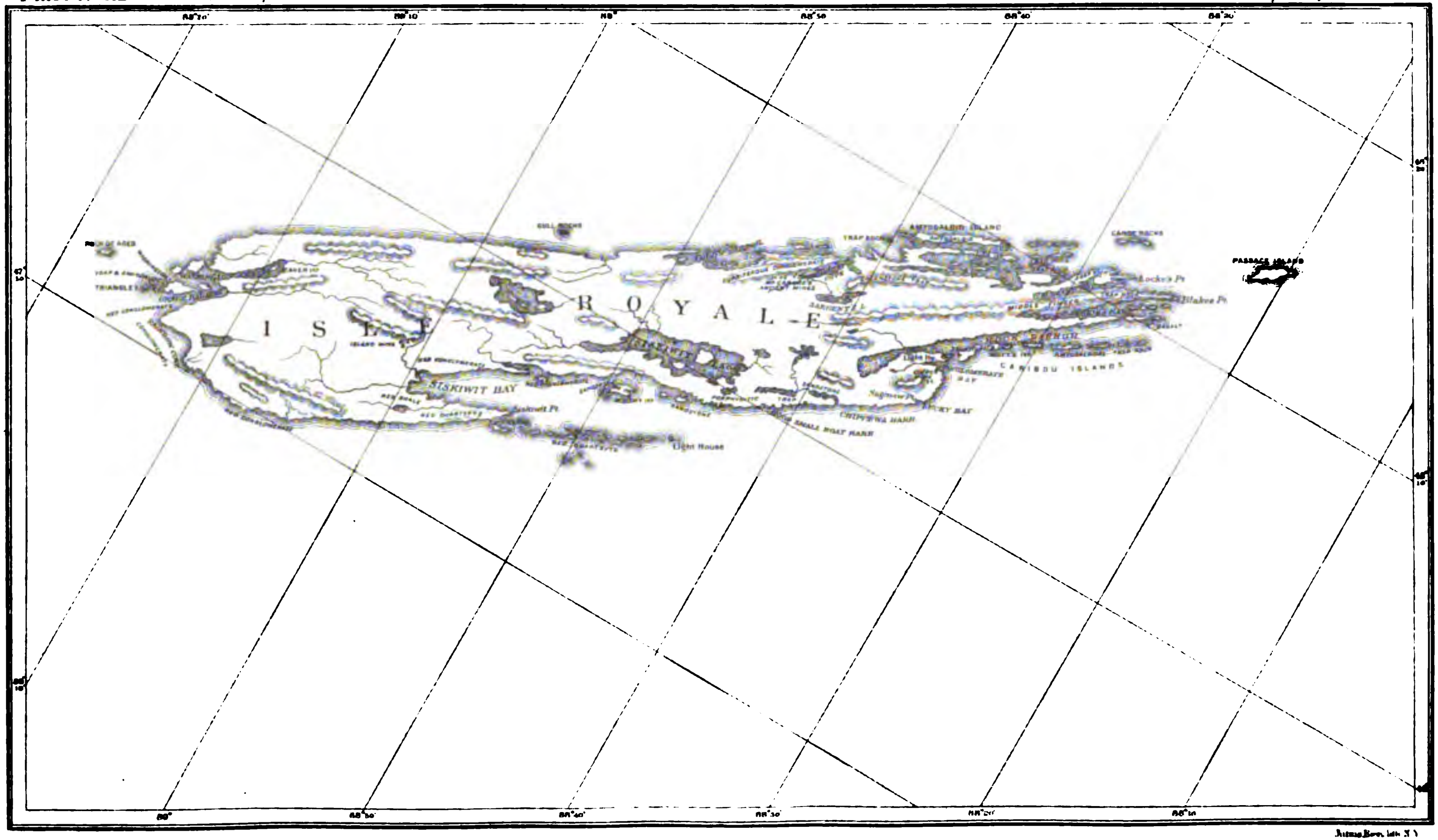
PLATE III.

Sketch Map of Isle Royale.

To illustrate notes on the Geology by N. H. Winchell in 1879.

PLATE III. 10th Annual Report.

Geological and Natural History Survey of Minnesota



Julius Bien, lith. N.Y.

PLATE I.

Diaptomus castor.

1. Male, antennæ not yet fully developed, showing shell, gland, heart, reproductive, alimentary and muscular systems.
2. Female, antennæ and appendages removed except fifth feet.
3 and 4. Nauplius stage.
5. Male foot of fifth pair, (a) " thumb " of larger branch.
6. Female foot of fifth pair.
7. Mouth parts etc.

MINNESOTA · CRUSTACEA.

10th Annual Report **PLATE I.** *Geol. & Nat. Hist. Sur. Minn.*

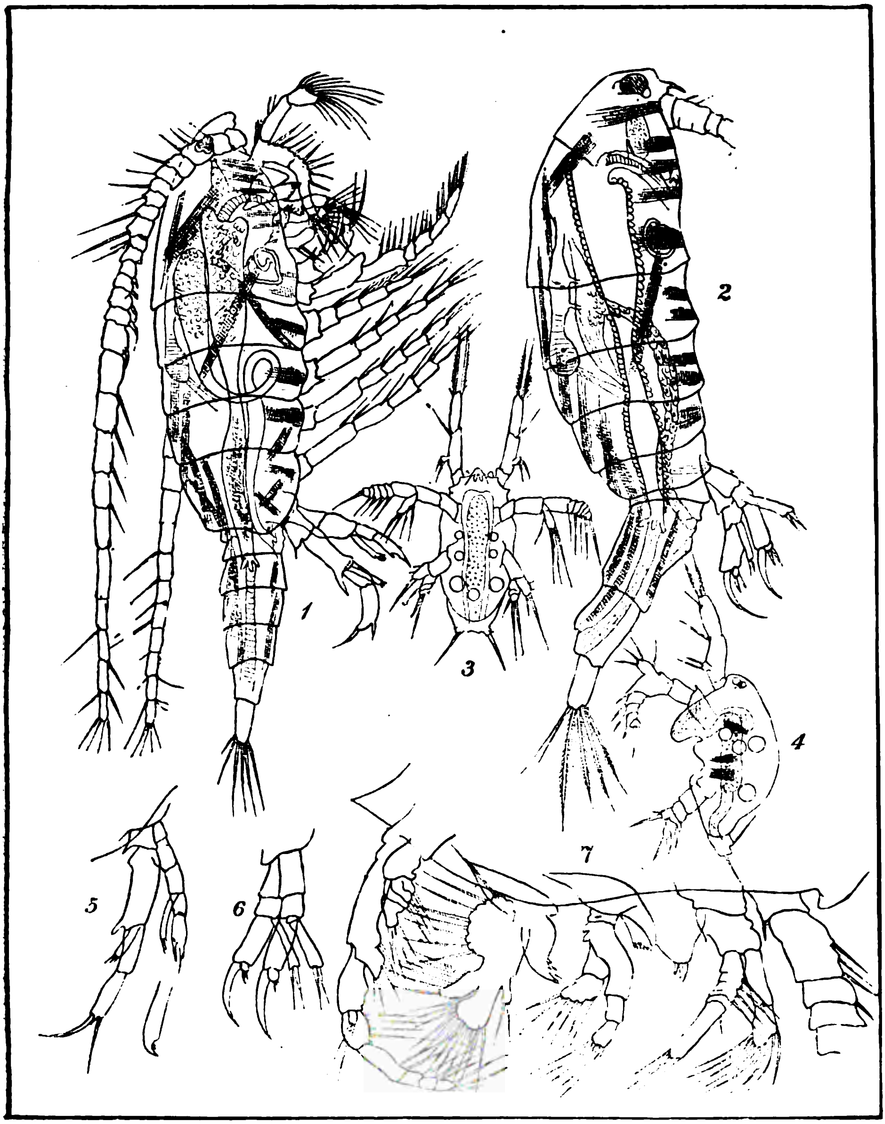


PLATE II.

Diaptomus castor.

1 End of male antennæ.

2. End of abdomen.

Diaptomus giganteus.

3. Caudal stylet.
4. One pair of feet.
5. Maxilliped.
6. Maxilla.
7. Mandible and palp.
8. Antennule.
9. Male fifth foot.
10. Female fifth foot.
11. Spermatic tube.

Potomoichetor fucosus.

12. Female fifth foot.
13. Female abdomen and egg-sac.
14. Abdomen of young.
15. First foot of *Diaptomus giganteus*, one branch drawn reverse.
16. " " *castor*, " " "

MINNESOTA CRUSTACEA.

PLATE II.

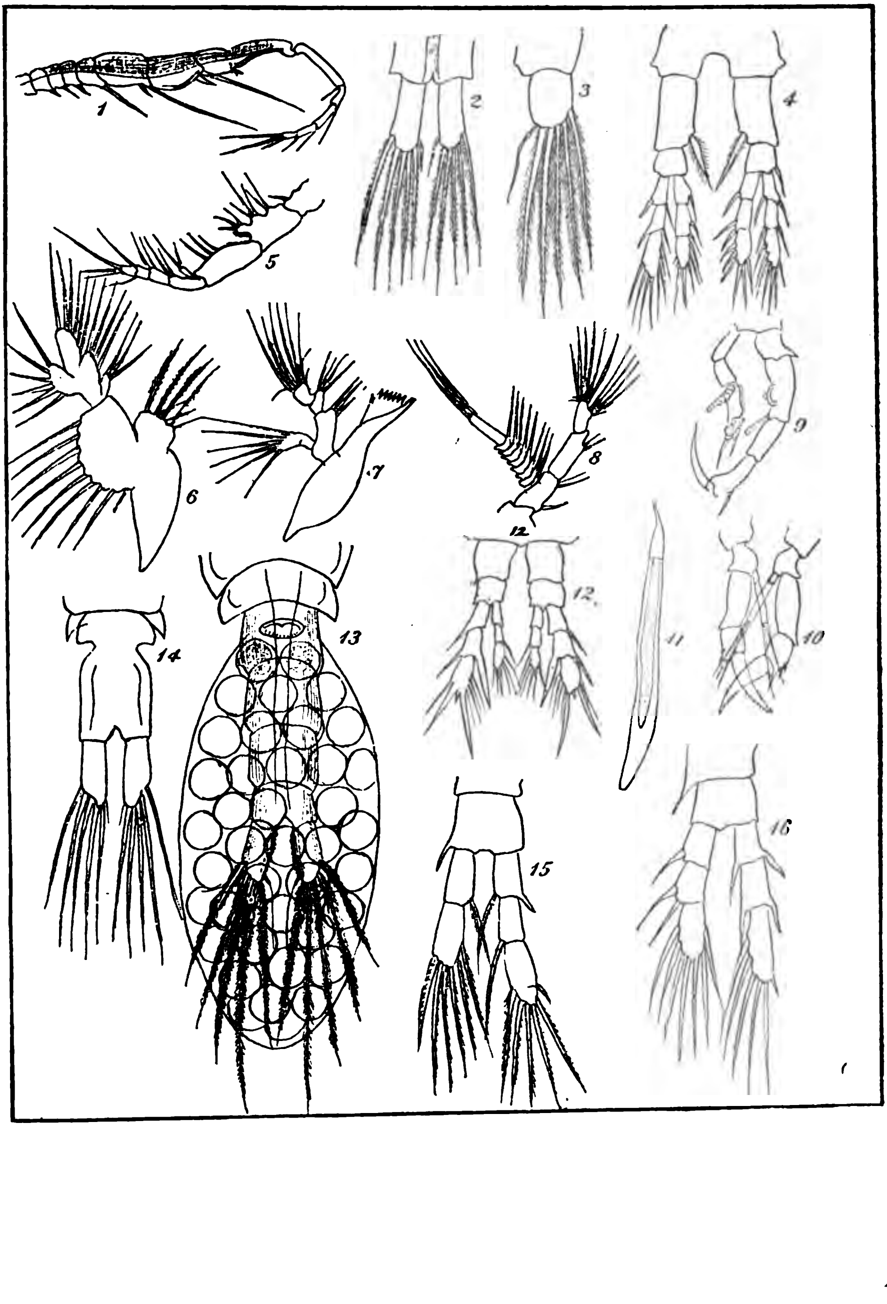


PLATE III.

Potomoichetor fucosus.

1. Male.
2. Antennule.
3. Maxilliped.
4. Male fifth pair of feet.
5. Palp of mandible.
6. End of abdomen.
7. Feet of first pair.
8. Eye.

Cyclops ater.

9. Female
10. Abdomen.
11. Maxilliped.
12. Antenna.
13. Maxilla of *Potomoichetor fucosus.*
14. Mandible of " "

MINNESOTA CRUSTACEA.

10th Annual Report **PLATE III.** *Geol. & Nat. Hist. Sur. Minn.*

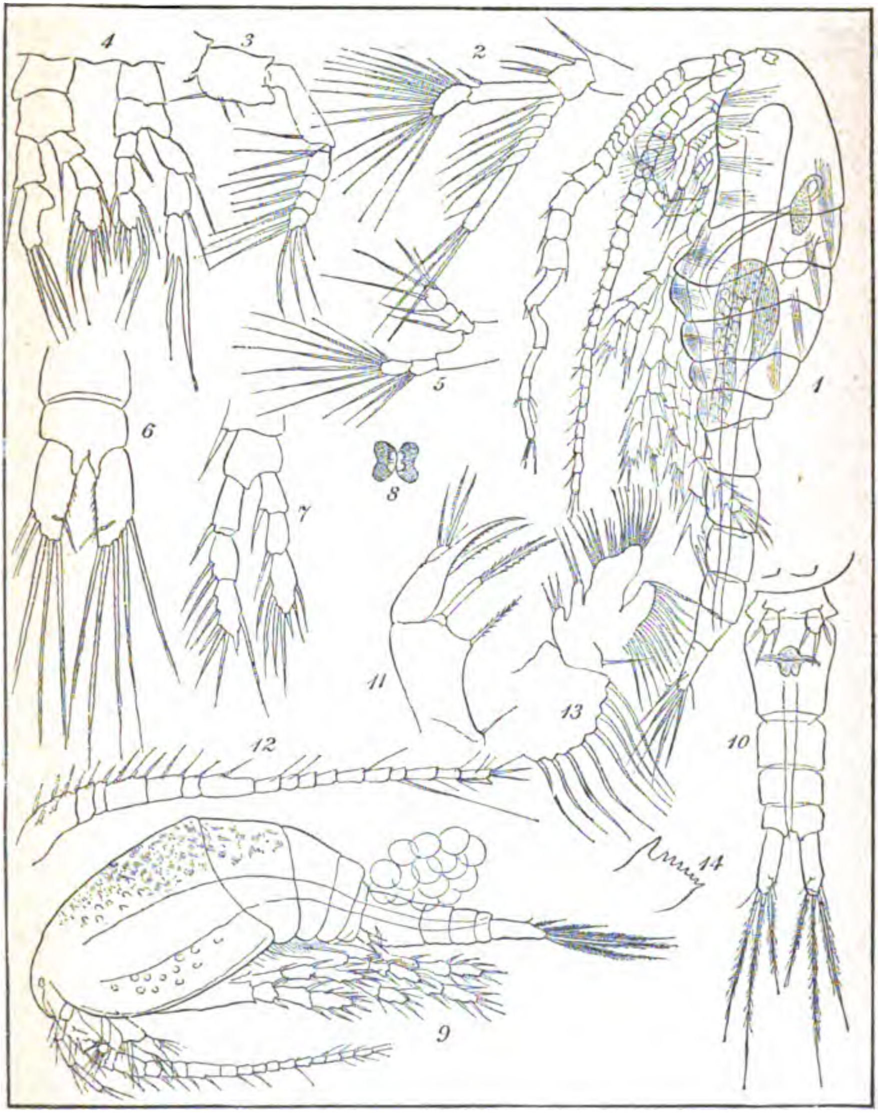


PLATE IV.

Cyclops ingens.

1. First segment of abdomen of female.
2. Antenna.
3. Fifth foot.
4. Antenna of young male.
5. Stylets of mature female.
6. " young male.
7. Maxilliped.
8. Mandible.

9. *Cyclops crassicornis*, Female.

10. Antenna.
11. Terminal portion of abdomen.
12. Female fifth foot.
13. Second antenna.
14. Nauplius form.

MINNESOTA CRUSTACEA.

10th Annual Report — PLATE IV. — Geol. & Nat. Hist. Sur. Minn.

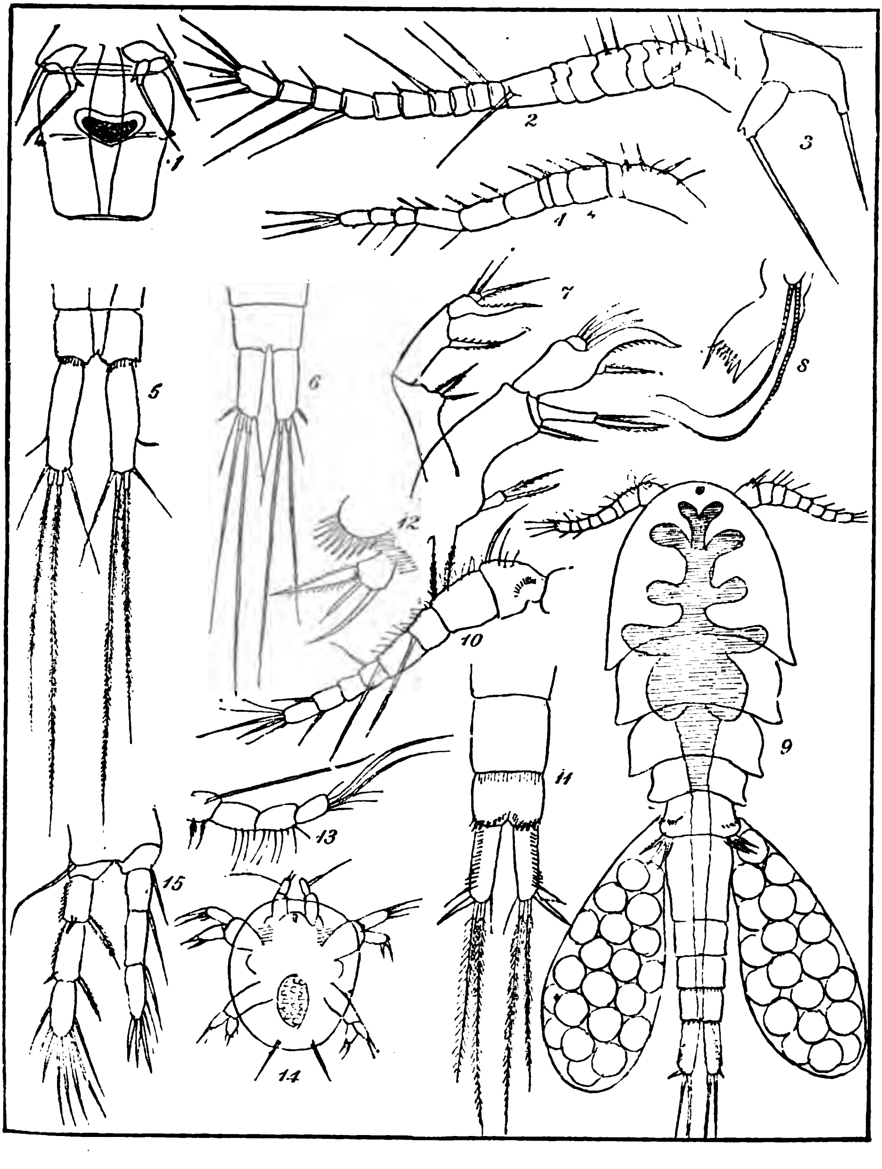


PLATE V.

Cyclops serrulatus.

1. Female.
2. Antenna of elongated form.
3. Stylet of ordinary form.
4. Antenna of very young.
5. Stylet of elongated form.

6. *Cyclops navus*, antenna.

7. Furca.
8. Abdomen of young.
9. Abdomen of male.
10 Opening of spermatophore.
11. Fifth foot.
12. Antenna of young.
13. " male.
14 *C.* "*signatus*," maxilliped.
15. *C. navus*, swimming foot of first pair.
16. " " " second pair.
17. Maxillipeds.

MINNESOTA CRUSTACEA.

PLATE V.

10th Annual Report *Geol. & Nat. Hist. Sur. Minn.*

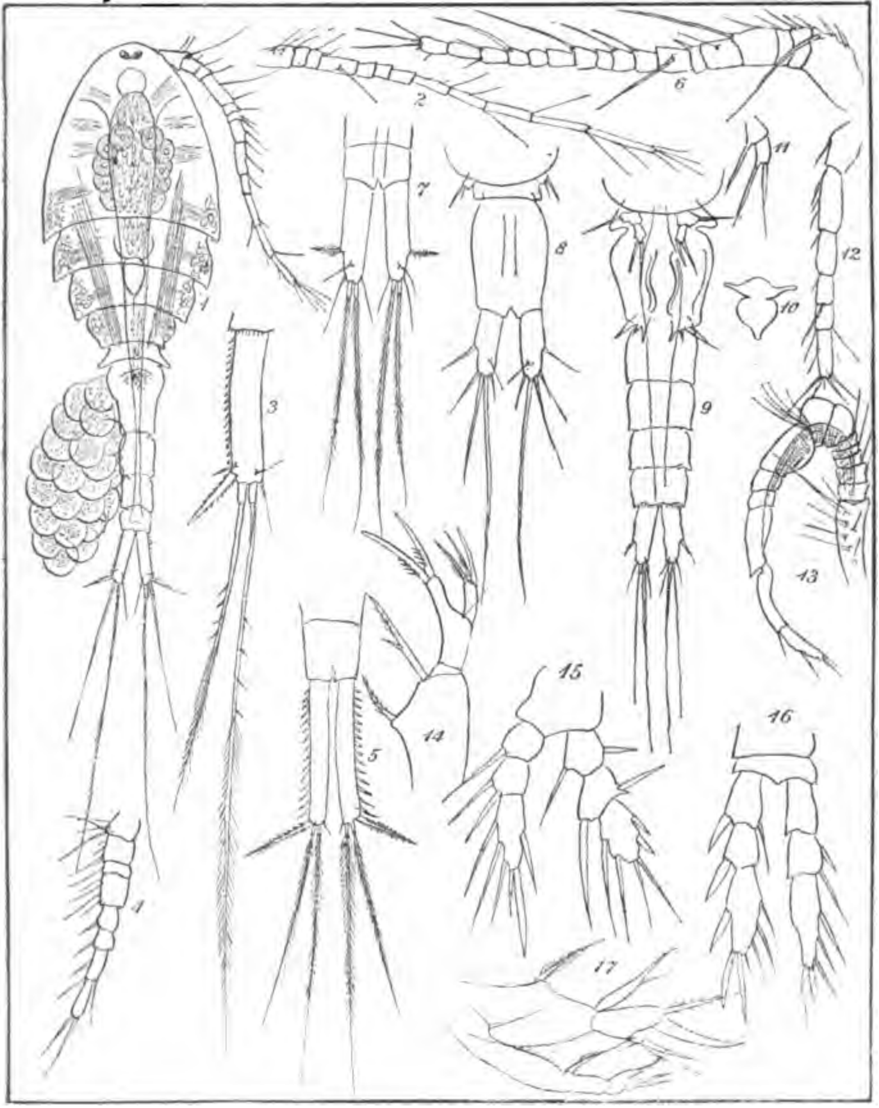


PLATE VI.

Cyclops tenuicornis.

1. Female.
2. Mandible
3. Maxillæ.
4. Stylet.
5. Fifth foot.
6. Maxillipeds.
7. Antennule.

C. "*signatus.*"

8. Abdomen.
9. Antenna.
10. Fifth foot.
11. Male antenna.

Cyclops parvus.

12. Abdomen.
13. Antenna
1 . Fifth foot.

Cyclops adolescens.

15. Opening of spermatophore.
16. Abdomen.
17. Foot.
18. Female antenna.
19. Eye.
20. Male antenna.
21. End of antenna of a form of *C.* "*signatus.*"

MINNESOTA CRUSTACEA

10th Annual Report PLATE VI. Geol. & Nat. Hist. Sur. Minn.

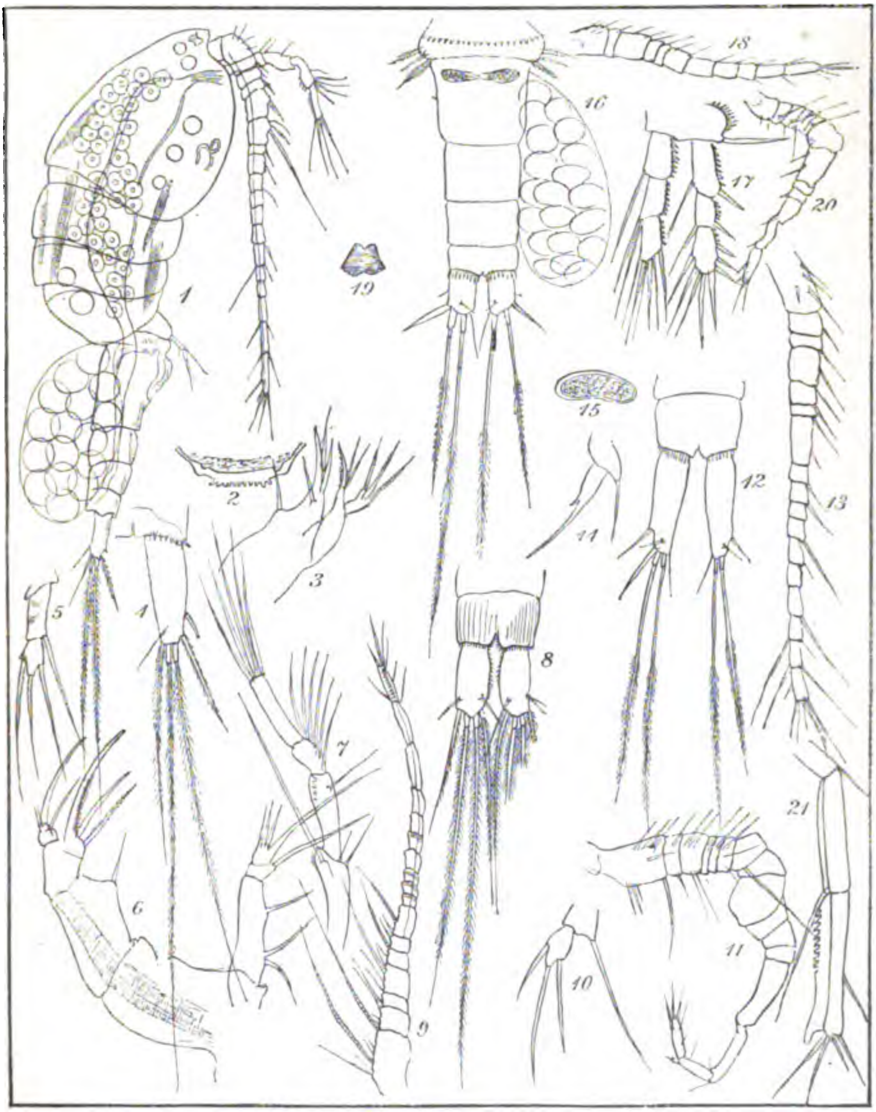


PLATE VII.

1-9. *Cyclops fluvialitis.*

3. Antenna of young.
4. Abdomen of young.
10. Young of *C. serrulatus.*
11. *Daphnella brachyura*, female.
12. " " male.
13. Part of edge of valves.
14. End of male abdomen.
15. End of female abdomen.
16. Antenna of male.

MINNESOTA CRUSTACEA.

10th Annual Report **PLATE VII.** Geol. & Nat. Hist. Sur. Min

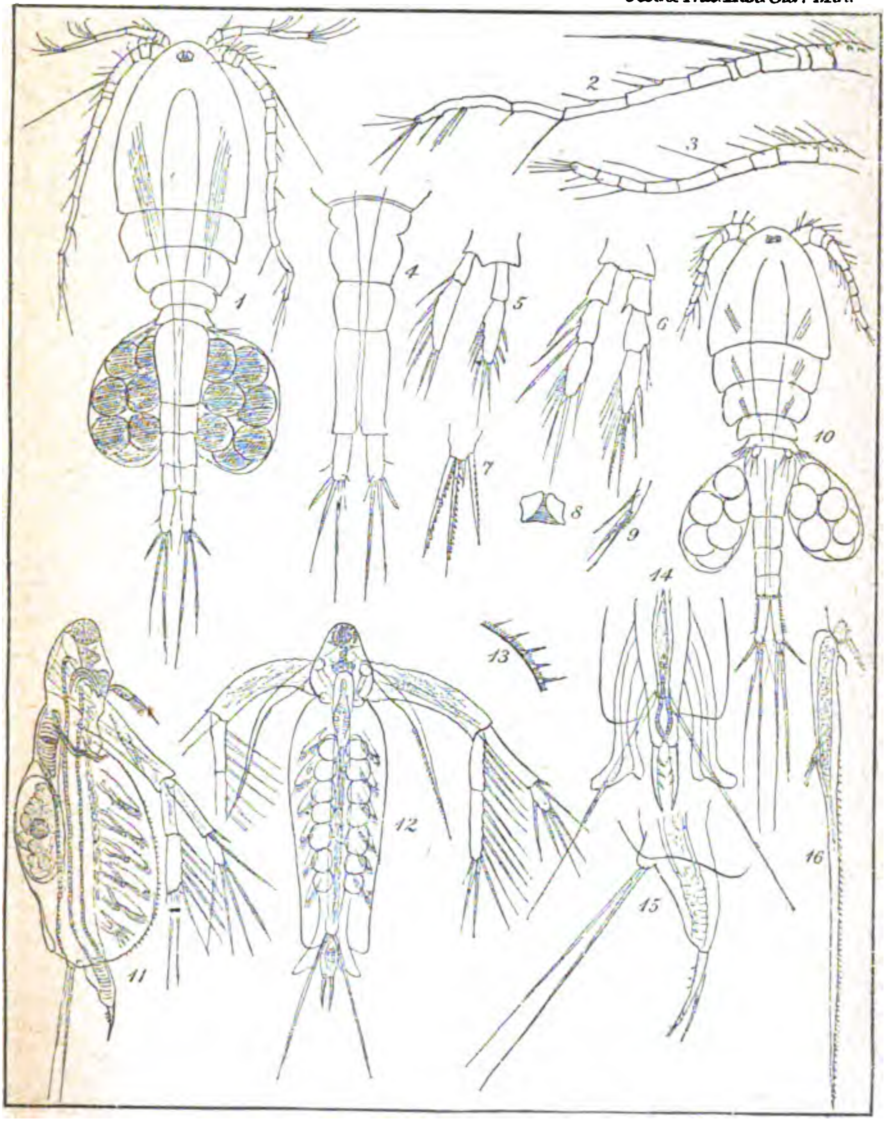


PLATE VIII.

1.	*Macrothrix pauper.*	9–10.	*Camptocercus rotundus.*
2–6.	*Iliocryptus spinifer.*	11–12.	*Lathonura rectirostris.*
7–8.	*Leydigia quadrangularis.*		

MINNESOTA CRUSTACEA.

PLATE VIII.

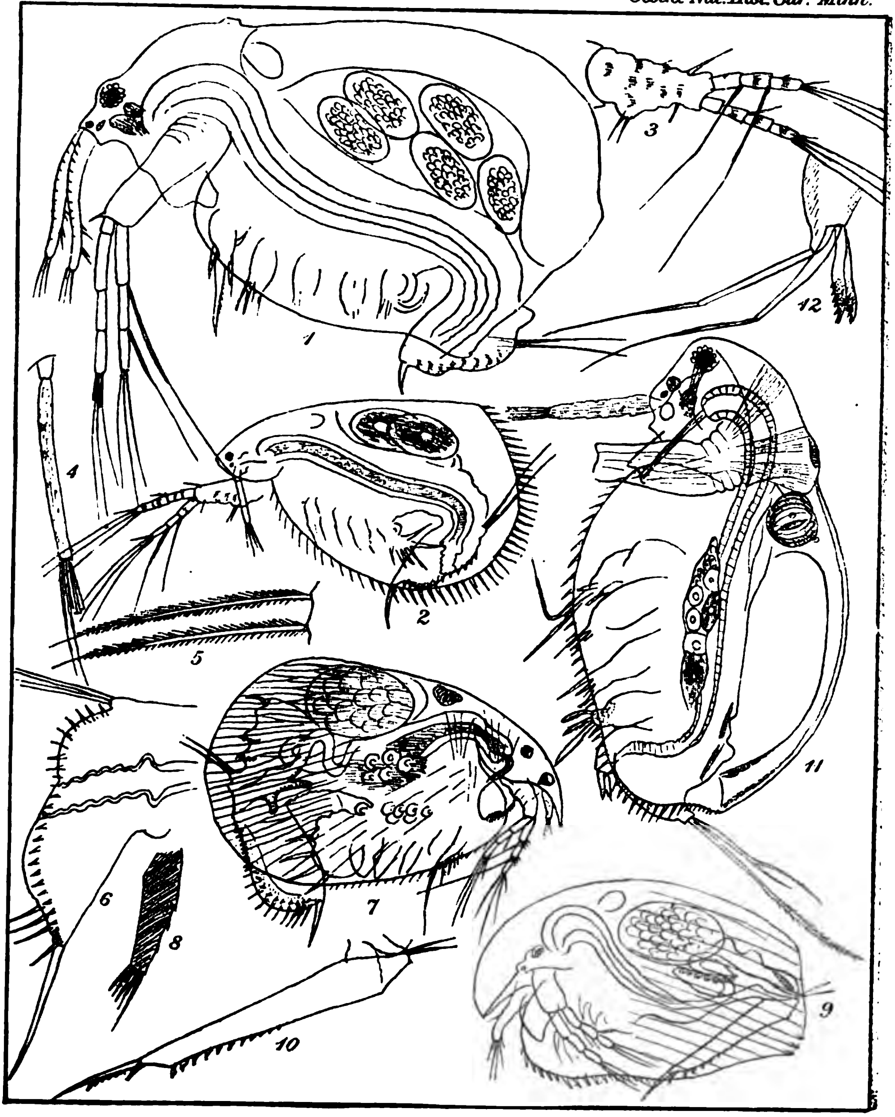


PLATE IX.

1–3. *Lyncodaphnia macrothroides.* 4–6. *Polyphemus pediculus.*

MINNESOTA CRUSTACEA.

10th Annual Report **PLATE IX.** *Geol. & Nat. Hist. Sur: Minn.*

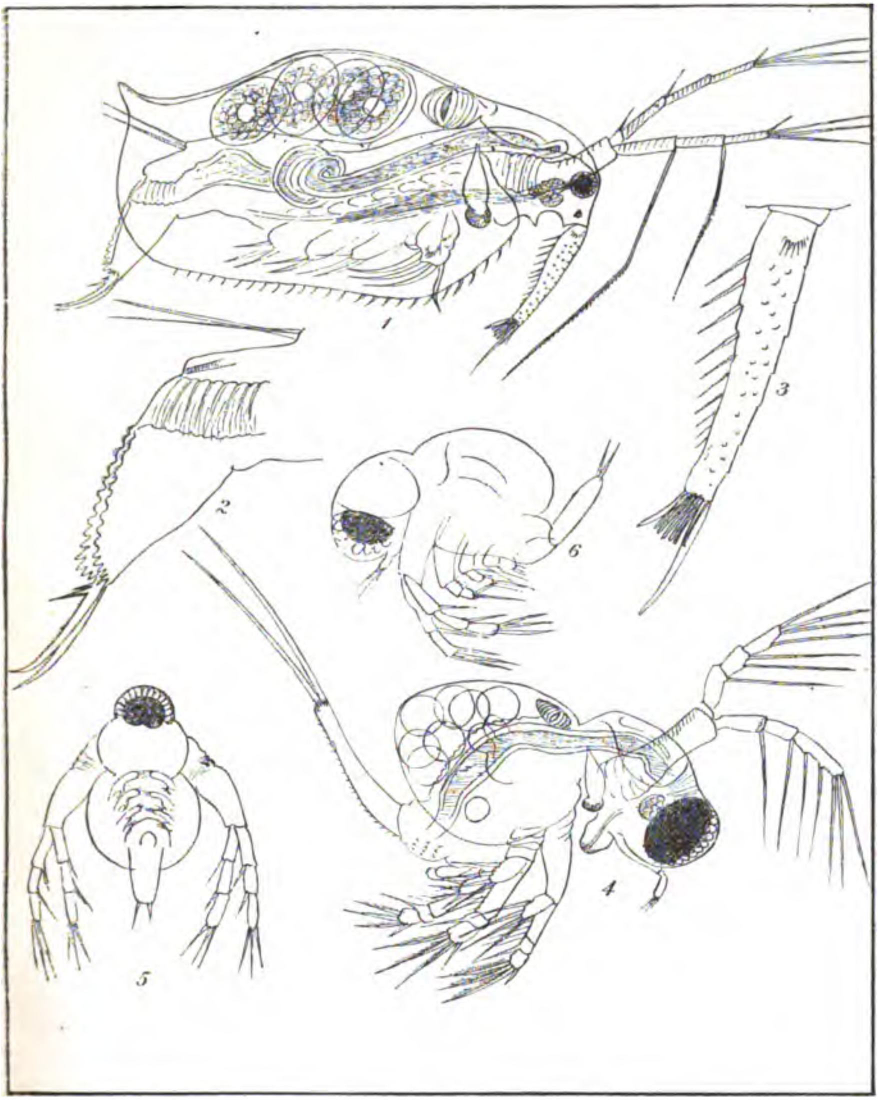


PLATE X.

1. *Bosmina striata.*
2. " *longirostris.*
3-5. " *cornuta.*
6–7. *Pleuroxis procurvatus.*

8. *Graptolebris inermis.*
10. *Acroperus sp?*
11–12. *Graptolebris inermis.*

MINNESOTA CRUSTACEA.

10th Annual Report **PLATE X.** *Geol. & Nat. Hist. Sur. Minn.*

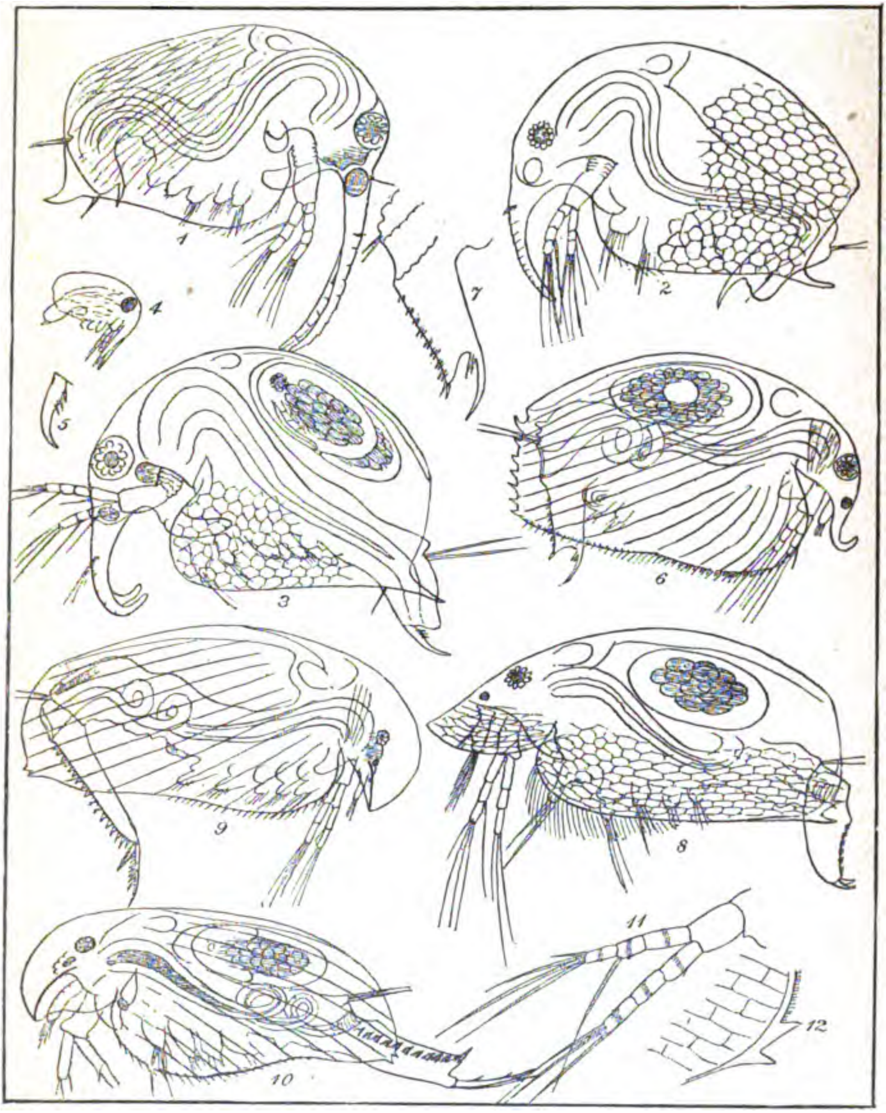
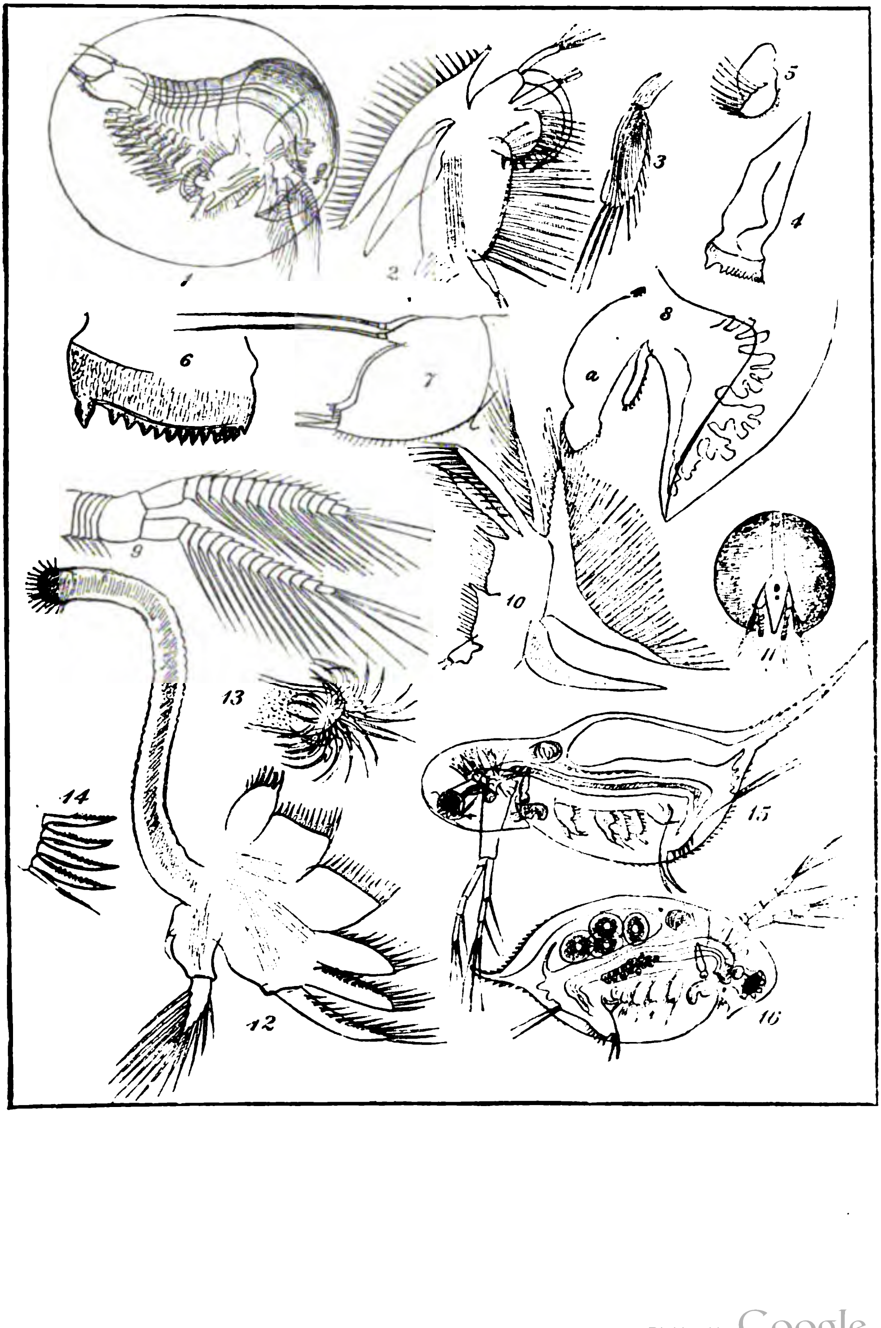


PLATE XI.

1. *Limnetes* sp ? male.
2. First foot of male.
3. Antenna.
4. Mandible.
5. Maxilla.
6. Mandibler teeth.
7. Caudal appendages of female.
8. Head, labrum etc., of female.
9. Antenna (2d) of female.
10. Foot of female.
11. Exterior of whole animal from in front.
12. Modified (sexually) foot of female.
13. End of process of same.
14. Magnified spines of lateral limbs of same.
15. Daphni sp. ?
16. Daphni sp. ?

MINNESOTA CRUSTACEA.

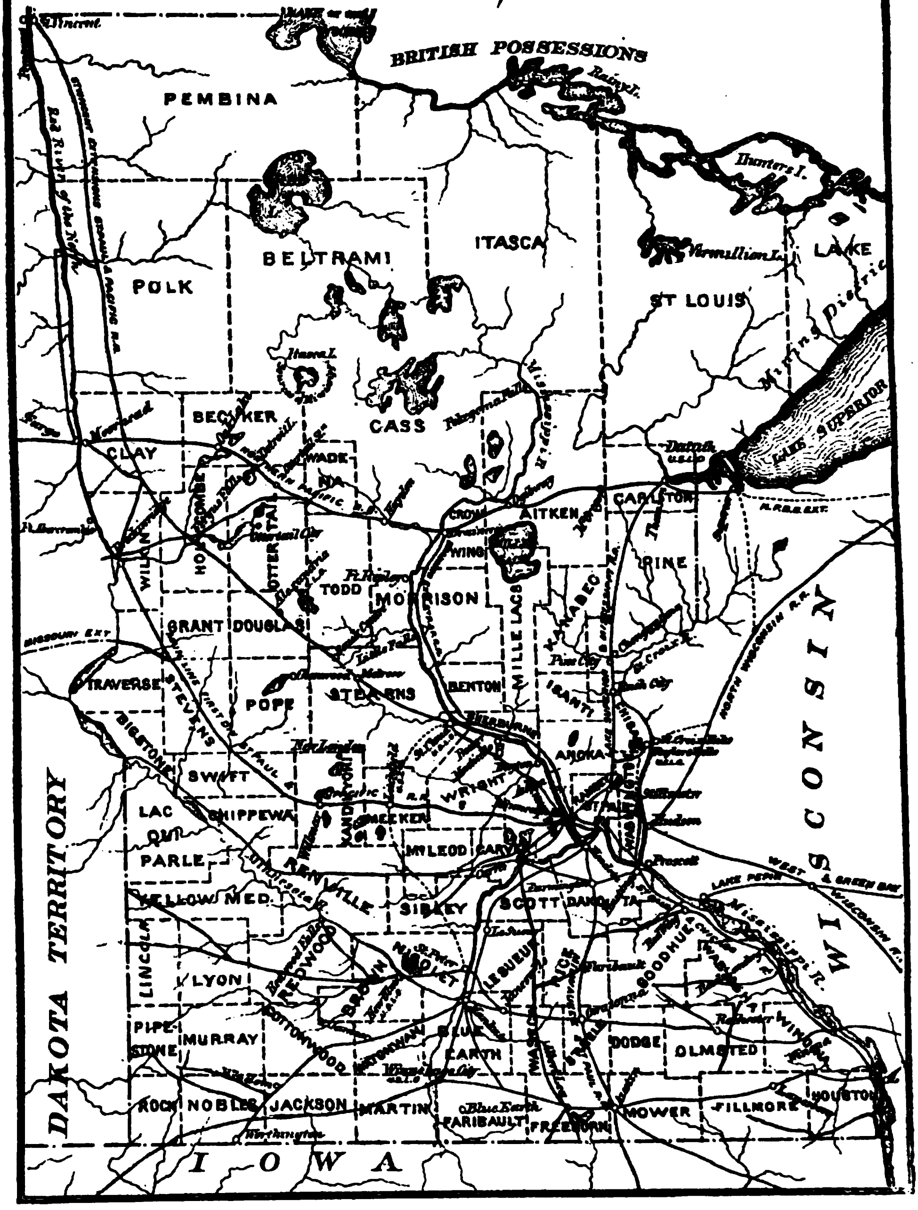
PLATE XI.



MAP OF MINNESOTA.

Showing the Location of the Counties.

Total area 84,286 square miles.



THE
GEOLOGICAL
AND
NATURAL HISTORY SURVEY
OF
MINNESOTA.

THE ELEVENTH ANNUAL REPORT,

FOR THE YEAR 1882.

N. H. WINCHELL, STATE GEOLOGIST.

Submitted to the President of the University May 21, 1883.

MINNEAPOLIS:
JOHNSON, SMITH & HARRISON.
1884.

1-92

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ADDRESS.

To the President of the University:

I present herewith the eleventh annual report on the progress of the geological and natural history survey of the state. In the year 1882 the only field-work done was that performed by myself in the counties of Winona, Wabasha and Dakota, and the report thereon will be included in the first volume of the final report, now in press. The accompanying report embraces important matters coming within the purview of the survey in the northern part of the state, that have as yet only partially been worked up, and hence does not really embody the work of the year in full, a considerable portion of which has been devoted to maps and manuscripts on the southern and western counties.

Respectfully submitted,

N. H. WINCHELL,

State geologist and curator of the general museum.

MAY 21, 1883.

REPORT.

I.

THE MINERALOGY OF MINNESOTA.

[A report read before the Minnesota Academy of Natural Sciences, October, 1882.]

By N. H. WINCHELL.

During the year no special effort has been made to further a knowledge of the mineralogy of the state by this committee. But some advance has been made by the publication of work that had been done before by others. The committee has not had any meetings. This is partly due to the absence of the chairman, and partly to his neglect when not absent. The section consists of N. H. Winchell, T. B. Walker, A. F. Elliot, C. W. Hall, J. A. Dodge, A. H. Pearson, N. Butler, R. J. Baldwin and M. A. Morey.

In the inception of any systematic and thorough work on the mineralogy of Minnesota it is obvious that the first thing to do is to find out what has been done already. It is the object of this paper to accomplish that for the Academy. In other words this paper begins with a reference to publications on the minerals of the state so far as they can now be ascertained — a kind of *bibliography of the mineralogy of Minnesota* — and ends with an enumeration of such minerals as are known to occur in the state, and a statement of their localities, with notes on their characters and peculiarities.

Bibliography of the mineralogy of Minnesota.

The earliest mention of any minerals in Minnesota is to be found in the Relations of the Jesuit missionaries. The pious and venturesome fathers occasionally mention metallic copper in possession of the Indians, and in some cases attempt to give some idea of the whereabouts of the mines from which it was obtained, but their statements are of little scientific value. La Harpe's "History of Louisiana" mentions that Le Sueur saw a large mass of native copper near the mouth of a small lake at a point four leagues above the mouth of the St. Croix river. One of the early maps locates a coal mine on the Minnesota river some distance above its mouth. Le Sueur's fanciful copper-mining took place in 1700 and 1701 and was located at fort L'Huillier, near the mouth of the Blue Earth river. Carver in his "Travels" first alludes to the "red marble," of which the Indians made their calumets, now known as *catlinite*, and to various black, white and blue clays found in the same part of Minnesota.

Prof. Wm. Keating, however, in 1823 seems to have been the first to have identified any minerals by recognized and accepted scientific terms within the limits of Minnesota. This was during his expedition with major Stephen H. Long to the "source of the St. Peter's river and to lake Winnipeek," wherein he acted as geologist, mineralogist and general chronicler. It is true that major Long in 1817 in his narrative of a "Voyage in a six-oared skiff to the falls of St. Anthony" had enumerated sundry brilliant pebbles which he had gathered on the summit of Gwinn's bluff, in Winona county, saying they consisted of "*crystals of iron ore*, *siliceous crystallizations* beautifully tinged with iron, some of them purple, others reddish, yellow, white etc., crusts of sandstone strongly cemented with iron, and I think set with *solid crystals of quartz*;" and again at a point a few miles below the mouth of the St. Croix he mentions a bluff which he ascended on the slopes of which he observed a variety of pebbles and stones amongst which were the *agate* of various hues, *chalcedony*, *flint*, *serpentine*, *ruby* and *rock crystals*, etc.; but as major Long was not a mineralogist while Keating was, it will do Long no injustice to accredit the first accurate mineralogical observations to Keating.

His first observations were on the sands that compose the banks of the Mississippi below St. Paul (vol. 1, p. 304). He remarks that in these sands sometimes are found "carnelians, agates, jaspers, etc., which present characteristics analogous to those observed on the Rhine below Oberstein, and in Scotland where they are distinguished by the name of Scotch pebbles."

* * * * "In one or two instances while examining the sand with a miscroscope, a white transparent topaz with its dihedral summit, could be well made out."

At the mouth of the Redwood river, Keating enumerates *quartz*, *feldspar*, *mica* and *amphibole*, and dwells on the great variety of combinations which they assume in the primitive rocks there *in situ*. At the lake of the Woods he mentions *iron pyrites* and veins of quartz; and on the authority of Dr. Bigsby, staurolite is said to occur in the slates of Rainy Lake river.

Mr. Featherstonhaugh mentions galena not far from Red Wing; salt springs east of the Pembina hills; and bituminous coal at lake Traverse.

Mr. George Catlin, whose work on Indian costumes and manners is well known, visited the famed red pipestone quarry in 1836, and was the first to procure and bring away for chemical examination a piece of the pipestone. This he submitted to Prof C. T. Jackson, of Boston, who gave it the name of *catlinite*, though Gen. H. H. Sibley insists that the Indian name (e-yan-shah) should be preserved. (Journal of the council of Minnesota 1849, p. 30.) The paper of Mr. Catlin is published in the American Journal, (1) XXXVIII, though it was read before the Boston Society of Natural History, Sept. 4th, 1839. Dr. Jackson's analysis is in the 35th vol. of the American Journal, p. 388. Of this pipestone the following analyses by Prof. Peckham have been published in the *sixth annual report of the geological and natural history survey of Minnesota*, p. 101.

	Silica	Alumina	Iron	Manganese	Magnesia	Lime	Alkalies	Water
Jackson,	48.20	28.20	5.00	0.60	6.00	2.60		8.40
Peckham, (light-colored)	58.25	35.90	trace	—	—	—		6.48
Peckham, (red)	57.43	25.94	8.70	—	trace	trace		7.44

The geological survey of Wisconsin, Iowa and Minnesota, by Dr. D. D. Owen, added largely to the accurate mineralogy of the state of Minnesota. This was carried on from 1847 to 1850. As we shall have occasion to refer considerably to this in the enumeration of the minerals of the state, as well as to some of the following publications, it is sufficient here simply to name them.

In Schoolcraft's volume giving an account of the final discovery of the source of the Mississippi in 1831 and 1832 is a short list by Mr. Schoolcraft of localities of minerals observed in the Northwest in 1831 and 1832. Among these localities are named the following in Minnesota:

Calcareous tufa in the gorge below the falls of St. Anthony.

Granular quartz, falls of Pokegama, upper Mississippi.

Agate, imbedded in trap-rocks of lake Superior.

Hornblende, as a constituent of the primitive rocks of the upper Mississippi.

Argillite, St. Louis river.

In Schoolcraft's volume entitled "Summary narrative of the discovery of the sources of the Mississippi," published in 1854, by Lippincott, of Philadelphia, may be found a report (p. 356) by Mr. Schoolcraft, to John C. Calhoun, secretary of war, on the geology and mineralogy of the region of the upper Mississippi, bearing date 1822. This report seems to have been published first in 1854. In giving a description of the pipestone, now generally known as *catlinite*, he applies the true mineral name *opwagonite*, saying it is the Algonqûin word for calumet-stone or pipe-stone. Realizing that this Algonquin word is more appropriate than that applied by Dr. Jackson, and supposing that Schoolcraft's references would bear out his implied earlier use of this designation, I took the trouble to consult his earlier reports to which he refers with a view to the adoption of Schoolcraft's name should it prove to have antedated the word *catlinite*. But it was found that in his "View of the lead mines of Missouri," published in 1819, to which he refers, he does not make use of that designation, and is so far ignorant of the origin of the substance as to assign it to the Falls of St. Anthony. Again, when in 1820 he visited the falls of St. Anthony, he corrects, it is true, his statement that it is found here, and assigns it to the coteau des prairies, but still does not employ the term *opwagonite* in the report of that expedition, published under the title, *Narrative-journal of travels from Detroit northwest through the great chain of lakes to the source of the Mississippi river in 1820*, as a member of the expedition under governor Lewis Cass. It seems to be necessary, therefore, to conclude that Schoolcraft invented the word in 1854, and published it as if applied in 1822. If Mr. Schoolcraft made such a mineralogical report to Mr. Calhoun in 1822, it is remarkable that it was not published, nor referred to by him in his volume on the discovery of lake Itasca, published in 1834 by Harper & Bros.

Mr. Schoolcraft, in 1854, also enumerates the following minerals and mineral localities in Minnesota:

Iron-sand, on the shores of Fond du Lac, lake Superior.

Micaceous ioxide of iron, among the debris of the St. Louis river, and of Fond du Lac.

Ochery red oxide of iron, "Is produced near the spot called Big Stone lake on the head of the St. Peter's river." It was employed as a pigment by the Indians.

Quartz is mentioned in various forms:

Arenaceous, the sandrock of many localities.

Pseudomorphous, shores of lake Pepin; having taken the crystalline impress and form of rhombohedral crystals of carbonate of lime.

Chcalcedony, shores of lake Pepin.

Carnelian, shores of the upper Mississippi.

Agate, shores of the upper Mississippi.

Basanite, (touchstone) along the banks of the upper Mississippi.

Mica,—in minute foliæ—in alluvial soil of the upper Mississippi.

Hornblende, at the "peace rock" on the upper Mississippi.
[This is in section 27, Watab.—N. H. W.]

Granular graphite, in a small vein in the clay slate of the St. Louis river, at the head of the nine-mile portage. It is coarse-grained and gritty.

Besides an occasional mention of native copper, gold, magnetic iron ore, coal and argentiferous galena, in the reports of the early so-called surveys of the state and territory of Minnesota, most of which are exaggerated for ambitious and speculative purposes, but little is added, in these reports, to the mineralogy of the state. Their authority and much of their material are taken from Owen's earlier *Report on the Geology of Wisconsin, Iowa and Minnesota.*

They may be enumerated, however, in the bibliography of the state; viz., *Report on Geology*, No. 12 of the legislative documents of 1861, Anderson & Clark. 26 pp., 8 vo.

Report of Hanchett and Clark on the geology and physical geography of the northwestern district of Minnesota. 1865, 82 pp., 8vo.

Report of H. H. Eames on the metalliferous region bordering on lake Superior. 1865, 23 pp., 8vo.

Geological reconnoissance of the northern, middle and other counties of Minnesota, by H. H. Eames. 1866, 58 pp., 8vo.

Geology and Minerals. Report of explorations in the mineral regions of Minnesota, in the years 1848, 1859 and 1864, by Col. Charles Whittlesey. 1866, 54 pp., 8vo. This phamphlet is more valuable for its geology than its mineralogy. Its errors are numerous, among which may be mentioned its identification of prehnite at French river with quartz, and of labradorite feldspar at Split-rock river with quartz. The summit of Carlton's peak is said to consist of gray quartz.

The following statement is quoted from this pamphlet, p. 41: "In the spring of 1858 a boulder was found on the north shore of the St. Louis river, at Rice's point below Oneota, having a metallic appearance, with a pale brass color, and which weighed about 100 pounds. Various accounts have been current as to the locality of this mass. Mr. R. B. Carlton said it was found by Joe Pose soon after the spring freshet, in the sand at the place just named. In size it is about a foot long, with two faces nearly parallel, as though it came from a vein with regular walls, four or five inches wide. Some persons regarded it as an artificial alloy of zinc and copper, which had been produced by melting a church bell. It is broken with difficulty, and in the interior has patches of a greenish tinge. The mass has a whitish-yellow color, a pyritous aspect, finely crystallized with small blotches of spar, showing it to be not an artificial compound. As I was sending a box of minerals to my friend, J. H. Boalt, Esq., of the School of Mines at Freyburg, in Germany, a piece of this boulder was forwarded, with the request that it should be analyzed. The arsenides of copper were then unknown on lake Superior, but I have since seen a specimen from Portage lake. Mr. Boalt reported that about the time of the arrival of my specimen, another was received from Chili, in South America. All parties were interested to know what ore of copper they represented. The analysis gave 83 per cent. of metallic copper and 17 of arsenic, which approaches very near to the rare mineral, *algodonite* of Dana. The boulder, no doubt, came with the drift materials from the northeast, and represents a vein somewhere in that direction, perhaps not far distant."

In the *Minnesota Teacher* for June and July, 1871, Mr. J. H. Kloos has papers on *Geological rambles in Minnesota*, in which are found some discriminating remarks on the minerals constituting the crystalline rocks near Duluth. He mentions:—

Labradorite,
Diallage or hypersthene, or augite,
Magnetite,
Epidote,
Calcite,
Laumontite,
Chlorite,
Quartz,
Copper.

At Taylor's Falls he enumerates:—

Hornblende,
A transparent mineral of the color of chrysolite,
Labradorite,
Copper,
Dolomite,
Quartz,
Calcite,
Copper glance,
Earthy malachite.

In the syenites of the St. Cloud region he also enumerates the minerals which he expects to find on making a careful chemical and mineralogical examination, viz:

Orthoclase,
A triclinic feldspar,
Pyroxene,
Labradorite,
Anorthite,
Hyperite,
Hornblende,
Mica,
Protobarite,
Pyrite,
Quartz.

Mr. Kloos collected samples of some of the crystalline rocks, which he took to Germany. These were the subject of a series of papers by Streng and Kloos in the *Neues Jahrbuch fur Mineralogie* (Geol. u. Pal.) 1877. Mr. Kloos repeated his general observations, and extended them, in a paper published in 1871 in the *Zeitschrift d. d. geol. Gesell.*, p. 425.*

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*A translation of the latter may be seen in the tenth annual report of the survey, 1881.

Minerals and mineral localities in Minnesota.

NATIVE ELEMENTS.

GOLD.

Gold has been washed from the drift in noticeable quantities in various places in the state, particularly at Rochester, Oronoco, Spring Valley, sec. 31, Jordan, Fillmore county, and at several points in Wabasha county. As an ingredient of the bedded rocks it has been sought in the chloritic slates at Vermilion lake as reported by Mr. Eames in 1865, and somewhat in the same formation west of Moose Lake station in Carlton county. In these examinations, the former of which induced a general movement of miners and other hasty speculators to Vermilion lake, some gold may have been found if the assays published in Mr. Eames' report be true. Recent assays, however, do not give gold in any appreciable amount from the Vermilion quartz rocks nor from the slates containing the quartz veins.

Gold has lately been taken from the gravel at Willmar, as reported. The pieces are angular and appear to have been recently cut by some sharp instrument, indicating an artificial sprinkling in the naturally rounded gravel. It is 91 per cent. pure gold. the rest being copper. Gold is also found in the quartz veins of Rainy lake, but the shafts sunk have all been on Canadian territory, so far as I am informed.

SILVER.

Silver occurs native in the quartz veins of the slates in the northeastern part of the state, but no valuable deposits within Minnesota have yet been brought to light. This is the same formation that is wrought at Silver Islet and Thunder bay in Canada. Its most abundant occurrence is in the form of argentiferous galena. Several late enterprises have begun operations in the islands between Thunder bay and Pigeon river and one also is started on one of the islands south of Pigeon point, in Minnesota. Some of the float pieces of copper found in the central and northern part of the state also show small quantities of silver. The assays of the Vermilion gold ores reported by Mr. Eames show a small percentage of silver.

COPPER.

Copper has been mined at French river, at Snake river, at Sucker river, at Fall river, at Taylor's Falls, Chengwatana, and at several other points. At French river it occurs with prehnite and is occasionally associated with small quantities of native silver. This metal is disseminated in nodules and other vein-fillings throughout much of the trap-rock of the region, but is at the same time principally aggregated in one or two metalliferous beds, or belts; a shaft that penetrated 43 feet revealing two such beds. Pieces weighing several pounds have been taken from this shaft. At Chengwatana it has been sought by shafting in the trap and amygdaloids. Small particles have been found in the mineral thomsonite, which fills amygdaloidal cavities in the trap at Good Harbor.

Pieces of native copper of considerable size are occasionally found distributed through the drift in the central and southern parts of the state. Mr. T. Elwell, of Granite City, Morrison county, reports fifty-six pieces found in that vicinity, and transmitted to St. Paul, in 1861, by Hon. Levi Wheeler, representative from the third district. Several pieces have been found at Minneapolis and others at St. Paul. Numerous pieces have been found in the valley of the St. Croix; other localities are Rochester, Zumbrota, White Bear Lake, and along the Mississippi below St. Paul. Le Sueur is reported by La Harpe to have seen a large mass of native copper at a point four leagues above the mouth of the St. Croix river, near the mouth of a small lake. Several hundred pounds of float copper were found between the Northern Pacific Junction and Knife Falls, during the construction of the Knife Falls railroad. These pieces lay usually among stones on the surface, and were probably derived from the general drift-sheet that may be supposed to have covered the region, the railroad following the ancient valley of the St. Louis all the way.

IRON.

No well authenticated instance of native iron in Minnesota is known, though such has been reported from St. Paul. It is true that grains of metallic iron are found in the drillings of the well near the Harvester Works. These certainly are not natural. They have the form of iron cuttings and drillings artificially made and on being allowed to remain among the rock drillings become rusty immediately, cementing the rock grains in small rusty clusters. Their chemical composition also indicates that they are not natural.

GRAPHITE.

This is found in considerable quantities at Pigeon point. It is disseminated in lumps through a metamorphic sandrock. The lumps vary from the size of a pin-head to flattened masses six or eight inches in diameter. The sandrock sometimes becomes gneissic and is of the same formation as that which holds the silver mines of Thunder bay, and of Silver Islet. Graphite also exists in a vein about a foot thick a short distance above Thomson, at the head of the nine-mile portage. Schoolcraft says it is coarse-grained and gritty.

SIMPLE SULPHIDES, &c.

ALGODONITE.

This arsenide of copper was found in a large transported mass in 1858 on the shore of the St. Louis river near Rice's point. The piece was about a foot long, with two faces nearly parallel, although it came from a vein with regular walls four or five inches thick. It was reported to have been analyzed by J. H. Boalt of the School of Mines at Freiberg, Germany, and was found to afford 83 per cent of metallic copper with 17 per cent of arsenic.

WHITNEYITE.

On the authority of Mr. Dana, the large mass of algodonite last mentioned was stated to be partly made up of *whitneyite*, which is a compound of copper and arsenic, but having less arsenic than algodonite.

GALENITE.

This sulphide of lead is common in the state. It has been found almost invariably in the trial shafts for silver in the lake Superior region. It is associated with calcite, barite, pyrite and quartz. It is also found in limited quantities in the Galena limestone in the southern part of the state and in the St. Lawrence and St. Croix formations at Dresbach in Winona county. In the St. Croix sandstone at Dresbach it is found as a matrix which cements considerable masses of rock that is made up of sand grains and linguloid shells. In that form it has been taken out of a shaft about 20 feet below the level of the Mississippi river.

BORNITE.

This is probably the ore found by shafting, about 3 miles west of the mouth of Cascade river, lake Superior, and on the island south of Pigeon point. It also occurs in a dark bed of metamorphic conglomerate, about 6 feet thick, at London, near Duluth.

SPHALERITE.

This sulphide of zinc is common in the shafts sunk for silver in the slate and quartzyte group at Pigeon point and along the international boundary. It is also reported from Stillwater.

CHALCOCITE.

In a vein near the water level at St. Croix Falls, opposite Taylor's Falls.

PYRITE.

A common mineral. It occurs in all mines, and as nodules in most of the rocks of the state. It is found in the common building-stone (Trenton) at Minneapolis, as little shining yellow specks, and in the Cretaceous shales in the western part of the state. Sometimes it weathers out of the latter and is found on the sloping bluffs where these shales outcrop. It is also common in the blue drift-clay or hard-pan of the western part of the state, derived originally from the Cretaceous, and in that situation it retains its metallic lustre unchanged, affording frequent clusters of crystals that are quite beautiful. In some cases it seems to be indigenous in the drift-clay, in the same manner as selenite crystals.

CHALCOPYRITE.

Common in the shafts sunk in the cupriferous rocks in the northern part of the state—as well as in the slate and quartzyte group of Pigeon point.

MARCASITE.

Very common in the southeastern part of the state, where it accompanies the Cambrian limestones. It is found in lumps, partly altered to limonite, on the tops of the bluffs in that part of the state, along the river valleys. It is evidently the result of denudation from some higher strata.

COMPOUNDS OF CHLORINE.

HALITE.

The only evidence of this mineral in Minnesota is the occurrence of saline springs, and of artesian salt water in the northwestern part of the state. The most noteworthy instance is the deep well at St. Vincent, where, however, the brine contains also some lime and some magnesia.

COMPOUNDS OF FLUORINE.

FLUORITE.

This occurs in small quantities at Lester river, on the north shore of lake Superior, and in much larger quantities in some of the veins that have been explored for silver in the northeastern part of the state.

COMPOUNDS OF OXYGEN.

CUPRITE.

This mineral was observed, mingled with malachite, coating a piece of metallic copper which was found on the surface or among the drift materials, near Rochester. It doubtless also exists in varying quantities wherever metallic copper is found in the rocks of the state.

WATER.

Within the state there is a superficies of 5,637 square miles of water; and at Minneapolis the average flow of the Mississippi is 25,000 cubic feet per second. The average rainfall at Minneapolis is about 29 inches.

HÆMATITE.

This exists in large quantities in the vicinity of Vermilion lake and in the Mesabi range. It also occurs as a red, ocherous deposit in numerous places. It has been employed as a pigment by the Indians, who obtained it at Big Stone lake, at Grand Portage, lake Superior, and in the valley of the Blue Earth river.

MAGNETITE.

This is found in large quantities in the northeastern part of the state. It is apt to bear titanium, but when found in large strata in the Huronian formation, it is wholly, or nearly free from it. It occurs also at Rainy lake.

MENACCANITE.

This seems to be the principal magnetic mineral which enters nto the gabbro and other igneous rocks of the Cupriferous in Minnesota. It is so abundant in the region of Iron lake, north of Grand Marais, and at Herman, near Duluth, that it has attracted attention as an iron ore. The titanium present is frequently not enough to constitute this mineral, which requires from 30 to 40 per cent. It is sometimes as low as three per cent., the mineral then being rather titaniferous magnetite. As iron-sand it gathers on the lake Superior shore at Black beach, about four miles west of Beaver Bay, and can be extracted from the gravel with a magnet in nearly all parts of the state.

LIMONITE.

This ore of iron is frequently found pseudomorphous after pyrite and marcasite. This is particularly the case in the changed marcasite found in the southeastern part of the state. As a bog-ore it is found frequently, and it often stains the earth and the peat about lakes and stagnant pools, when it cannot, from its impurity, be styled correctly *limonite.* It is found as a bog-ore in considerable quantities near Coon creek, in Anoka county.

OXIDES OF THE CARBON-SILICON GROUP.

QUARTZ.

This most common of all minerals exhibits itself in nearly all its forms in Minnesota. Its most remarkable and pure deposits are seen in the St. Peter and St. Croix sandstones with which all geologists are familiar, in the bluffs of the Mississippi river and its tributaries, where it constitutes 98 per cent. of the rock. As agate, carnelian and chalcedony, it exists in the trap-rocks in the northeastern part of the state, and is distributed in the gravel throughout the eastern half of the state. Agate bay is so named from the great numbers of pebbles of agate that are found on its beach. But they are equally numerous in other places. Many may be found at Burlington bay and at the point next west of Knife island. As chalcedony it weathers out of the trap at Gooseberry river, and in the drift of the western part of the state it is in that form from fossil wood derived from the Cretaceous. It is less commonly found as amethyst in the Cupriferous, the only locality known in Minnesota, being on a small island a short distance east of Gooseberry river. Amethyst also occurs sometimes in the siliceous geodes of the Shakopee and St. Lawrence dolomites. As heliotrope or bloodstone, very fine specimens are sometimes found, but the prevailing color is brownish or black, rather than green. Moss-agate, which seems to come from agatized wood, is more common in the western part of the state, referable to the Cretaceous or Tertiary debris. Flint, hornstone, basanite, touchstone, red, brown and black jasper, as well as jasperoid hæmatite with beautiful banding, are common as pebbles throughout the state, particularly the eastern half. Agates and carnelians are so abundant that they are largely represented in every amateur collection, and thousands of specimens have been carried from the state. The amethysts that are sold so abundantly at Duluth are from Thunder bay, 150 miles further east on the north shore. Quartz occurs in perfect crystals in the quartz-porphyries on the north shore of lake Superior, in Minnesota, and in the form of prase it is found on the beach among the pebbles.

ANHYDROUS SILICATES.

HYPERSTHENE

Is a constituent of the rock at Black beach about four miles west of Beaver bay. Although this is the only point at which this silicate has been reported, though here subject to correction by more careful examination, it is probable that it occurs largely in the rocks of the north shore of lake Superior. It may be confounded with bronzite, since they show the same kind of metalloidal surfaces which glitter like mica in the sunlight. It has the same crystallization also.

BRONZITE (ENSTATITE.)

The rock composing Encampment island on the north shore of lake Superior has a metalloidal augite as an important constituent, which is thought to be enstatite. It has, however, been examined only microscopically, and is subject to further analysis.

WOLLASTONITE.

A radiated white fibrous mineral from Scoville's point, Isle Royale, weathering from the trap of the region, is believed to be wollastonite, but the samples gathered have not been examined carefully. The same may be looked for in Minnesota between Grand Portage and Grand Marais, judging from the strike of the strata.

PYROXENE.

The only form of pyroxene within the state that has been identified is the variety known as augite; and much of that belongs to the sub-variety diallage. It comprises a large constituent of the igneous rocks of the cupriferous, and is disseminated from Chengwatana to Pigeon point. The regular form of pyroxene seems to pervade the rock known as trap-rock at Taylor's Falls, but that is also subject to further examination.

SPODUMENE.

This may be doubtfully named as a Minnesota mineral from the Mesabi range.

AMPHIBOLE.

Under this name are included all the varieties of hornblende found in the syenites and crystalline schists of the state. This is a very common mineral. It is found in the St. Cloud and Sauk Rapids syenites, in the syenite near Duluth, and in the same formation back of Grand Marais. It is abundant in a rock at West Gull lake, near Saganaga, where it is associated with quartz and a little plagioclase so as to constitute a rock styled amphibolyte. The same rock spreads widely west of that point. Actinolite appears as a microscopic mineral in many thin-sections from the rocks of Minnesota. Both actinolite and tremolite are reported from Rainy lake by Dr. Bigsby.

CHRYSOLITE.

This mineral, which is common in the igneous rocks of the cupriferous series, as one of their constituents, sometimes makes, nearly alone, the entire rock. Such is the case in a rock on the iron trail north from Grand Marais, about half way between Little Trout lake and Brule river. (Sur. No. 677.)

GARNET.

Small garnets occur abundantly in the schists at Little Falls. Larger ones are in the same rock at Pike rapids, associated with staurolite. These are of the usual dark cinnamon color. But at Duluth in some of the metamorphic strata of the cupriferous is a wavy, honey-yellow garnet, pierced with microscopic actinolite. This is in small quantities in laminations in a metamorphic shale. (18 A.) Garnet occurs also at Rainy lake.

EPIDOTE.

A common mineral in the cupriferous rocks of lake Superior. It is known at Duluth, at Taylor's Falls, and abundantly on Isle Royale.

BIOTITE.

This is a common mineral in the syenites at St. Cloud, and as a microscopic mineral in the rocks of the cupriferous.

MUSCOVITE.

This is probably the mica that is mingled with the schists at Little Falls and at Thomson; and forms a constituent of most of the granites of the state. It is disseminated also through some of the sandstones, particularly the lower portions of the St. Croix at Dresbach. Along the northern boundary at Rainy lake and at lake of the Woods it has been seen in large foliæ.

WERNERITE.

This is found in the trap at the Island mine, Isle Royale, and doubtfully identified on the north shore of lake Superior at Lover's bay, in Minnesota. The form glaucolite is found also at the same place on Isle Royale.

ANORTHITE.

This accompanies orthoclase in the porphyries at Duluth and at Taylor's Falls.

LABRADORITE.

This the chief constituent of the Rice point gabbro, and of the range of hills that passes behind Duluth, and reaches to the international boundary. It forms the rock of Carlton's peak. It is embraced in basaltic trap at Split Rock point as transported light-colored boulders, making a curious pudding-stone. It occurs beautifully in large masses at Beaver Bay and constitutes low hills near the lake shore a few miles east of Beaver Bay. In some of these cases this mineral is nearly pure and makes up the whole rock. It does not, however, exhibit the internal opalescence, generally, which characterizes it in Labrador, and in Lewis county, New York. It is the chief feldspathic ingredient in the igneous rocks of the Cupriferous series.

ANDESITE.

This mineral occurs at Duluth, in the porphyries of the cupriferous.

ORTHOCLASE.

This is found abundantly disseminated porphyritically in the rocks at Duluth, and in the porphyry at Taylor's Falls, and is an essential ingredient in the granites everywhere in the state,—particularly those having a red color. It is perhaps as often found uniting with hornblende forming syenite, as with mica forming granite. It fills amygdaloidal cavities at Chester creek on the beach of lake Superior.

OLIGOCLASE.

This feldspar is found in an augitic quartz-dioryte at Watab, and in the syenitic granite at Sauk Rapids.

ALBITE.

It is disseminated porphyritically in some of the schists of the Huronian in the region about Vermilion lake, and is found also in the granite at Watab. A large boulder of chloritic schist, having crystals of albite ¾ inch across, was found by Dr. Elliot near lake Calhoun.

TOPAZ.

Occasionally occurs in the sand of the drift along the Mississippi below St. Paul.

DATOLITE.

Is found on Isle Royale, in the trap rocks, and is likely to be found in Minnesota, but has not yet been certainly identified.

STAUROLITE.

Is found in the mica schist at Pike rapids on the Mississippi, and at lake of the Woods in a similar rock, associated with garnet. At the former place the crystals are frequently twinned, at least crossed so as to make symmetrical cruciform figures, and some are attached obliquely. The schist disintegrates easily, allowing the crystals to mingle with the gravel where they are found sometimes in most perfect form and preservation.

HYDROUS SILICATES.

PECTOLITE.

Fine specimens of pectolite occur on Isle Royale, but it has not yet been identified with certainty in Minnesota.

LAUMONTITE.

This crumbling, flesh-colored mineral is very abundant in the Cupriferous rocks. It is not only found in the red amygdaloids, (or pseudo-amygdaloids) in which it pervades beds that reach a thickness of 1 to 15 feet, but is also found more sparsely disseminated in the amygdaloids of the trap itself. Its rapid disintegration when exposed to the weather is the first and most efficient cause of the many purgatories and arched rocks that beautify the scenery of the north shore of lake Superior. It is disseminated in these crumbling beds through a shaly rock of a red color, which often presents the characters of sedimentation, and even among the red conglomerates of the Cupriferous; these sedimentary beds showing fucoidal fossils.

CHRYSOCOLLA.

This occurs occasionally on the north shore of lake Superior and in the Cupriferous rocks of Pine county. It is generally associated with chalcopyrite.

PREHNITE.

At French river, containing native copper. It is here abundantly scattered through certain beds in all their cavities and veins, comprising, perhaps, one-tenth of the rock. It is radiated and fibrous, of a light color, slightly greenish in larger masses and appears like quartz, for which it has been mistaken. It is the gangue of native copper which has been taken out at French river.

CHLORASTROLITE.

At Rock Harbor, Isle Royale.

ZEOLITES.

THOMSONITE.

Of this section of the silicates probably the most noteworthy in Minnesota is the thomsonite which is found abundantly in the trap-rocks, from Terrace point to Poplar river, and even further west, on the north shore of lake Superior. It was brought to light by the Mayhew brothers of Grand Marais, who have bought of the squaws many hundred dollars worth gathered from the beach of the lake, where they are found smoothed by the waves among the gravel, thus showing their beautiful markings, and have sent them to eastern dealers in minerals and gems. Eclipse beach and Terrace point are the chief localities.

LINTONITE.

This is found associated with thomsonite, and seems to be a variety of that mineral. It is green, generally amorphous, and, although it frequently encloses the thomsonite amygdules, it also constitutes amygdules alone.

NATROLITE

Exists at Beaver Bay, on the north shore of lake Superior. It is in seams in the labradorite rock at the west point of the bay, and is taken out in crusts about ⅛ inch thick.

STILBITE

Is a zeolite common along the north shore of lake Superior, between Poplar river and Grand Marais. It occurs abundantly at Eclipse beach, and at Sugar Loaf point as far as Two Island river. It is also abundant about two miles west of Little Marais.

HEULANDITE

Occurs as coatings, very generally along the shore of lake Superior, in the joints of trap-rocks, according to the determination of Norwood. It is not certain but this mineral is the same as the next.

MORDENITE

Occurs with stilbite quite abundantly as amygdules on Sec. 29, T. 57, 6, a few miles west of Little Marais.

MARGAROPHYLLITES.

TALC.

This is the basis of the talcose schist, which plays a conspicuous part in the stratigraphy of the Huronian at Vermilion lake and on the International boundary; but no important deposits of the unmixed mineral have yet been discovered in Minnesota. It seems to be the chief ingredient in the greenish pipe-stone cut by the Indians from Pipe-stone rapids, and at Rainy lake.

GLAUCONITE

Is said to occur in the sandstones of the St. Croix, as at Red Wing and in the St. Lawrence limestone at St. Lawrence. But the characters of the Lower Silurian greensand do not agree with those of the Cretaceous greensand, nor with that from igneous rocks.

SAPONITE.

Under the name thalite, a mineral from the mouth of Knife river, was described by Dr. Owen as new to science, but Genth has shown it to belong under saponite. It is soft and nearly white, filling cavities in amygdaloidal rock at the very water's edge. It is also found in the same kind of rock on Kettle river, in Pine county. Owen regarded it, however, at the latter place, as a magnesian harmotome.

HALLOYSITE?

Whether the decomposed granites of the Minnesota valley can be included under this term or not, they certainly should be placed in this section of the silicates. The most of this deposit, which occurs characteristically at "Birch Cooley," is amorphous, earthy, soft, greenish and ferruginous on analysis; but in some places it is more nearly white, approaching kaolinite in outward characters.

DELESSITE.

Common as a product of decay in the trap-rocks of the north shore of lake Superior. It also fills amygdaloidal cavities and cracks. It gives a soft and slippery feel to the green traps when undergoing incipient decay near the water-line. It has a velvety radiated crystallization.

PROCHLORITE.

This term is here employed for all the chlorites and chlorite-like minerals that occur in the Cupriferons rocks, except delessite. Very often a chlorite-like mineral results from the decay of hornblende or augite. This is often called viridite, which signifies the same thing, but is used to avoid the appearance of exact knowledge of its mineral nature. The chlorite schists can hardly be distinguished from the talcose, and hardly from the hydro-mica schists without minute chemical or miscroscopic investigation. Hence it must be understood that the term here is used without intending to apply closely to that class of crystalline rocks, although there can be no doubt but the chloritic schists form an important group of the crystalline strata.

PHOSPHATES.

APATITE.

At present this is known only as an unimportant ingredient of the igneous rocks. It exists not only in the trappean beds of the

Cupriferous, where nearly every thin-section reveals, under the microscope, numerous needle-shaped crystals, but also in the igneous dykes that cut the rocks of the so-called Huronian at Thomson and the syenites of Sauk Rapids. The well known fertility of the soils derived directly from the decomposition of the igneous rocks seems to be due largely to the presence of this mineral.

SULPHATES.

BARITE.

Barite is common in the northern part of the state as a gangue rock in the veins that have been explored for silver and copper, particularly for silver. It is associated with calcite, pyrite, amethystine quartz and galenite. On Pigeon point is a conspicuous dyke or vein of white barite which crosses from one side of the peninsula to the other about one foot in width. This has long been known, having been described by Norwood, an assistant on Owen's survey.

GYPSUM.

This accompanies the Cretaceous rocks in the western part of the state and is found on the slopes of some of the bluffs made of the Cretaceous shales, as at Big Stone lake. It is frequently found in perfect, transparent, selenite crystals in the drift-clay in digging wells in the drifted western counties; where it seems to have been formed by segregation from the clay.

EPSOMITE.

On account of the easy solubility of this mineral it is not known to have been found in its crystalline condition in the state, but it is in solution in the alkaline waters of the western part of the state, in noticeable amounts. Mingled with some common salt it seems to have been the basis on which the so-called salt springs of the state were located. It is also found on the lower side of some projecting shelves of magnesian limestone, as a delicate white efflorescence, the sulphur being probably derived from oxidation of pyrite. This is the case along the bluffs of the Galena limestone at Mantorville

MELANTERITE.

This is also a product of the oxidation of pyrite or marcasite, and in limited quantities exists in the same situations as epsomite, as a coating on the under surface of projecting strata of dolomite, but its color is apt to be yellowish instead of white.

CHALCANTHITE.

This has not been identified in the state, but undoubtedly exists in the northern portion. It results from the oxidation of chalcopyrite and is apt to be carried away in solution by waters that come in contact with it.

CARBONATES.

CALCITE.

As the essential and principal ingredient of all limestones, this is an abundant and very important mineral in Minnesota. The only pure limestones, however, are those of the Trenton formation (the building-stone beds) as seen at Minneapolis and St. Paul, and the Niobrara limestone of the Cretaceous. So far as examined this contains a small percentage of carbonate of magnesia also; while all the others are highly magnesian, or quite dolomitic. Calcite also occurs in veins in the crystalline rocks, where it sometimes exhibits perfect crystalline forms. At Pigeon point some perfect specimens have been obtained in the shaft sunk by Kindred and Baker. At Crystal bay, near Duluth, a modified red shale has numerous nests of perfect crystals enveloped in a recent red clay, loosely embraced in cavities in the rock. Nail-headed and cockscomb forms of crystals occur in the Niobrara beds at Redstone, near New Ulm. At Chatfield some of the calcite in the Shakopee limestone embraces much quartz-sand in translucent grains, giving it the characters of the Fontainbleau limestone of France. Near Caledonia in Houston county is a large deposit of argentine or lamellar calcite, lying on the sloping bluff of the St. Peter sandstone. It has a grayish-yellow and brownish, undulating lamination varying to nearly white. A large piece of the same once existed near St. Charles, in a similar situation, but it has been exhausted for hand-specimens. Calcareous tufa or travertine is abundant in Minnesota, being the deposit of calcareous spring water. It has been mentioned on the east bluff of the Mississippi, just below the falls of St. Anthony, whence thousands of specimens have been removed by visitors. At Osceola, (or the St. Croix lake), calcareous tufa has been burnt for quicklime for forty years at least. Marl is sometimes found in swamps and beneath peat beds. Sometimes, as at St. Cloud, it shows its origin by containing, still, fragments of the fresh water shells from which it was derived. In other cases it is an impalpable, pulpy mud, which passes gradually into calcareous clay.

DOLOMITE.

This is the characteristic mineral of the dolomitic limestones of the state—and they include by far the greater number of our limestone strata. In its crystalline, pure form, dolomite is rarely seen separated from the rock-masses. Sometimes as brown spar it is seen lining cavities or associated with calcite in geodic aggregations, as at St. Lawrence.

ANKERITE.

This is simply a ferruginous dolomite, and has been reported only from the St. Lawrence limestone at Clear Grit, in Fillmore county, where it fills cavities in the limestone. It there has a slightly grayish color.

SIDERITE.

This is found in occasional loose boulders in the drift, more or less converted to limonite in the condition of clay iron-stone. In this form its origin is referable to either the Cretaceous (or Tertiary), or to the Devonian strata. Such lumps occur abundantly at Austin, and are easily recognized by their weight. In a purer state it has been found filling cavities in other boulders, somewhat in the form of an amygdaloid, the outer surfaces becoming spotted with limonitic depressions, due to the weathering out of the siderite after its conversion to an oxide. The boulders that are thus marked are quartzitic. As a pure carbonate it is found in important quantities in the iron strata of the Mesabi range, in northern Minnesota.

MALACHITE

Occurs sparingly in numerous instances in connection with the Cupriferous rocks of the state, in the lake Superior region. It is found also at Taylor's Falls and at Chengwatana, as coatings on the protected surfaces of seams in the rock.

HYDRO-CARBON COMPOUNDS.

MINERAL COAL.

That which is popularly known as "coal" in Minnesota and in Dakota, is lignite or "brown coal" from the Cretaceous, or from the Tertiary. It embraces not only impressions of woody fiber, but frequently considerable undecayed wood as well as charcoal, which shows the grain and cellular structure of the original wood. The best of it, however, is clean, black, amorphous and hard. On drying, this cracks in innumerable places and slowly crumbles to finer pieces, and these again to finer—a quality which renders it difficult to transport on cars or handle for fuel because of the waste. It occurs in the Cretaceous strata at Redwood Falls, on Crow creek, at Fort Ridgely, and on the Cottonwood river southwest of New Ulm, and has been found in the drift in nearly every county in the state. It also occurs at Namekan lake, on the northern boundary. These strata are frequently penetrated in sinking deep wells in western Minnesota and in Dakota.

II.

THE CRYSTALLINE ROCKS OF MINNESOTA.

By A. STRENG, of Giessen, and J. H. KLOOS, of Hanover.

[Extracted from the *Neues Jahrbuch für Mineralogie*, 1877.]

TRANSLATED BY N. H. WINCHELL.

The following work has been performed by us both, but in such a manner that the one who gathered the rock-samples has described the outward appearance and manner of stratification, and the other has labored on their mineralogical, microscopical and chemical investigation.

In respect to the nomenclature of the rocks, it should be remarked at the outset that it was not our intention to create new rock species, and that consequently it became necessary, in the changing condition of petrography, brought about by the microscope, to select designations, which, it is true, are in accord with the old system of nomenclature hitherto used, but at the same time express, although briefly, that which distinguishes the rocks examined from those hitherto known. More extensive investigations only will be sufficient to determine whether the newly named rocks should be regarded as special rock-species or only as varieties of those to which they are most nearly related. If, for instance, a dioryte which, besides hornblende, contains an augitic mineral, shall be designated an *augite-dioryte* (if exact observations and investigations shall point to another dioryte) whether the presence of augite is a common property of dioryte, or whether it is limited to a few rocks, which, in that case, can be set off from the true diorytes as a distinct rock. We regard these names therefore only as provisional designations.

GENERAL DESCRIPTION OF THE APPEARANCE OF THE ROCKS.

The crystalline rocks which form the basis of this work were derived partly from the upper course of the Mississippi river, and one of its tributaries known as Sauk river, partly from the western extremity of lake Superior and near the mouth of the St. Louis river, and partly from the St. Croix river, on the boundary between the states of Minnesota and Wisconsin.

If one reach the shore of the great Mississippi above Prairie du Chien, in the state of Wisconsin, by any one of the railroads leading from the east, he notices immediately on both sides of the wide valley, perpendicular walls of sandstone which are capped with layers of dolomite of little thickness. These are the western representatives of the Lower Silurian formations named *Potsdam* and *Calciferous* sandstones in New York state. David Dale Owen has distinguished them, in his geological report for the year 1852, as *Lower sandstone of the upper Mississippi*, and *Lower Magnesian limestone.*

As one ascends the river toward the state of Minnesota, gradually the sandstone disappears, cut through in many ways by the streams and tributary rivers, so that by the time the St. Croix river is reached the banks consist entirely of layers of dolomitic limestone. These also have a slight northern dip, and give place, in the neighborhood of St. Paul, to the next higher members of the Silurian, the *St. Peter sandstone* and the *Upper Magnesian limestone.* The latter has been determined to be the undoubted equivalent of the *Trenton limestone*, or *Llandeilo flags* of England, by its numerous organic remains. The whole range of strata, through which one passes between Prairie du Chien and St. Paul, the end of steamboat navigation on the Mississippi, belongs therefore to the oldest fossiliferous formations.

From here heavy layers of diluvium (the *drift-formation* of North America) cover all the older rocks, and other outcrops are found only at 75 (English) miles higher up the river. Here, however, the rocks are crystalline, and appear in low ranges, which fall away gradually toward the land and disappear in swamps or sandy prairies. Here the Mississippi flows over an extent of 20 miles* through heavy crystalline rocks, with numerous windings and angles; further north is encountered a similarly wide zone of metamorphic schist—mica, talc and clay slates—and of gneiss-like rocks.

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* **In this paper English miles are always meant.**

This system of rocks corresponds to the Laurentian, and in the northern part, probably to the Huronian formation. It consists in great part of the most diversified granitic, syenitic, dioritic and gabbro-like rocks, while they seem to lack diabase entirely. Here belong the rocks from St. Cloud, Sauk Rapids, Watab and Little Falls, which below are fully described. It is remarkable that to the south from this zone of massive rocks there are no schists in outcrop, though it is probable that they are covered by the drift which constitutes the greater part of the surface of Minnesota and attains to a considerable thickness.

In the neighborhood of St. Cloud the Sauk river empties into the Mississippi. It has its rise in the lakes of northwestern Minnesota, and flows in its lower part, diagonally across the zone of Laurentian rocks a distance of 25 miles. These here constitute long, but low ranges of hills, generally covered by thick forests, but actually appear only in small areas in the river itself. Here the water flows rapidly, causing everywhere little water-falls and rapids. If one goes back from the shores of the river, the hills flatten out, and every trace of the older rocks disappears at once, under a heavy covering of debris and drift. From this region are derived the rocks from the west of St. Cloud, from Rockville, Cold Spring and Richmond.

Beyond the latter point the zone of the crystalline rocks cannot be traced, and at the same time here begins the area of the western prairies. The river cuts but few feet into the table-land, and affords no more outcrops of rock. From here one can travel all day in a westerly direction without seeing anything but deposits of drift, either of sand or clay, perfectly flat and without fossils, or somewhat greater accumulations of gravel and boulders, which latter are always to be seen in great quantities about the shores of the numerous lakes. So far as known to me, solid rock is exposed at but one point west of Richmond. In the thriving little town of Sauk Center, peopled mainly by Germans, I learned that stone-quarries had lately been opened in the neighborhood. The place lies 43 miles west from the Mississippi. At a distance of ½ mile south from the town can be seen a gentle elevation extending from northwest to southeast. On approaching this, one sees the soil and drift thrown out, and a little stone-quarry opened in two wholly different crystalline rocks—one a granite of a red color and somewhat gneissic texture, and the other a dark rock which in an earlier work* I distinguished as a diabase, but which now is known as a dioritic rock, and in our special investigation of these rocks, is proved to be a quartz-dioryte (No. 14).

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* J. H. Kloos: *A Cretaceous basin in the Sauk valley, Minnesota;* Dana and Silliman's Journal, 1872. p. 26.

As concerns now the outcrops of the separate rocks which are fully described in this work, the syenitic-granite (No. 20) is derived from St. Cloud and from Sauk Rapids (Nos. 18 and 19), and was designated as such in an earlier paper.§ They constitute sometimes rounded, somewhat elongated, gently rising hills, the intervals between them being filled with diluvial deposits, and sometimes low reefs in the river bed, or isolated knobs in the swampy lowlands along the river. The rapids in the Mississippi above St. Cloud, known as Sauk Rapids, are caused by syenite-granite. In the village so named may be seen in the syenite-granite three parallel small dykes of black melaphyr (No. 4) which also can be followed to the opposite shore; but here they are not in the syenite-granite, but penetrate a beautiful, exceedingly hard, syenitic granite-porphyry.

Six miles further north, at the small town of Watab (already half forgotten) several fine rocks outcrop. The hills here rise higher and are larger and the rocks rougher and wilder; unfortunately the region is heavily wooded, and only at isolated points could the rocks be freshly broken. From Watab were examined and described: augite-quartz-dioryte, (Nos. 16 and 17) syenite-granite (No. 22), and a melaphyr-like rock (No. 5). The white granite from Watab described in the *Geological Notes on Minnesota* (see above) is different from these, and outcrops only to a small extent. Furthermore the outcrops here are too limited to enable one to judge of the relations of the rocks to each other. One gets the impression, however, on the spot, that the coarse-grained granitic rocks penetrate through the fine-grained hornblendic rocks in the manner of dykes. Certainly that is the case at one spot where a fine-grained hornblendic rock, which besides two kinds of feldspar contains quartz and mica, is penetrated by very small granite dykes and veins.

At the village of Little Falls, which in part is inhabited by Indian half-breeds, the Mississippi reaches a slaty formation and forms, in passing over the outcropping beds, a series of rapids which produce a superior water-power, while the banks of the river here are high, and the channel is narrowed by a number of small islands through which opportunity is afforded for improvement by dams and locks. Inasmuch as the water generally has taken the direction of the strike of the rock-beds, it is difficult to determine the thickness of this slaty formation. It must however be very considerable. From a number of observations at various places I ascertained the strike of the bedding, N. 35° to N. 40°,* the dip toward the NW. 65° to 72°, while on the other hand the slatiness has a dip in the opposite direction at an angle of 70° to 80°. The nature of the beds is changeable, both in the direction of the strike and in the dip. Roofing-slates are widely disseminated: north from this place mica-schists prevail; toward the south the beds assume the character of a fine-grained gneiss, which is interbedded with layers of a beautiful angite-dioryte (Nos. 9, 10, 11, and 12). The first outcrops of this rock appear somewhat down the river, southwest from the village at the mouth of a little creek. They are twelve to fifteen feet high, and show the augite-dioryte variously developed. In the creek, farther up, rocks come to light which have a somewhat different character. They are described further on as augite-dioryte No. 13. In what relation these rocks stand to each other could not be determined.

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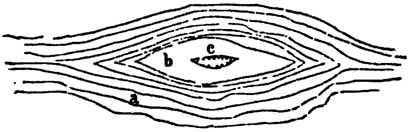
§ Geological notes on Minnesota. Zeit. d. d. geol. Ges. 1871 p. 428: Tenth annual report of the geol. and nat. hist. sur. Minn. 1881, p. 175.

In the crystalline roofing-slates at Little Falls are small lenticular parts, a foot in size, of a crystalline rock which was analyzed, and below is designated a quartz-dioryte (No. 15).



a. Crystalline schists. *b.* Quartz-dioryte. *c.* Drusy quartz.

This woodcut shows the appearance of these septaria of quartz-dioryte in the slates. They reach quite frequently a length of several feet. The rock contains little garnets disseminated through it, which along the margins of the septaria are in greater abundance. When the septaria are large they have a cavity in the center, the sides of which are very often clothed with crystals of quartz. The slates bend completely round the septaria.

Whether the slate formation here described must be reckoned as a part of the Laurentian formation, or of the Huronian, must remain undecided. In any case it presents a totally different character from the syenitic knobs at St. Cloud and Watab, and the slates appear not to have any connection at all with them.

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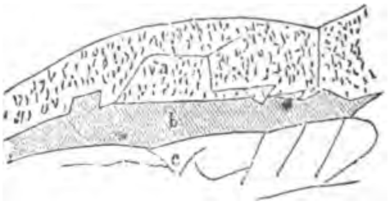
* Whether to the east or west of north the author does not state.—*N. H. W.*

Toward the north from Little Falls the firm rocks immediately disappear again under a heavy covering of sand and gravel. The banks of the river, which are in general heavily wooded, nowhere afford any outcrops of rock. The first rocky layers that are seen, are much further toward the north, at the well-known Pokegoma falls, and consist of banks of granular sandstone.

If one pursues the road from St. Cloud which leads up the fertile valley of the Sauk, (in which very many Germans are settled) he finds the first outcropping rock in the woods, three and a half miles west of the town, at a point where the road first reaches the river. It is a medium-grained syenite-granite, of a reddish color, with a structure somewhat porphyritic. Granitic rocks now remain a constant object in sight, sometimes in the bed of the river, and sometimes in the wooded bluffs along both shores. The finest outcrops are found by a little village named Cold Spring, fifteen miles from St. Cloud. Here the river has cut through a nearly parallel range of hills, the strike of which is about east and west. A finely granular porphyritic granite changes to a very coarse-grained syenite-granite. The latter in this region is very widely distributed, and extends even to Richmond.

The village of Richmond lies on a little sandy but well-tilled prairie, which on all sides is surrounded by high, wooded hills. Here appear Cretaceous beds in some thickness, and they have a character which unites them with those on the upper Missouri. The plastic clays of the Cretaceous rest immediately upon kaolinized granite. In the vicinity of Richmond is abundant opportunity to examine the coarse-grained granite in its relation with the augite-dioryte. For a mile southeast of the village are knobs of this rock in the immediate neighborhood of granite; and in the same region, a little farther away, is a stone quarry where, as the following woodcut shows, the dark, fine-grained augite-dioryte is overlain by a coarse-grained much weathered granite.

The bed *c*, which rises up so as to form a terrace, consists of a firm, hard-weathering rock, and dips toward the hill at an angle of about 45°, passing under the granite. It is exposed a thickness of about ten feet. The line of contact with the granite is covered with a lot of decayed debris from the granite. Under the bed *b* the granite cannot be found, inasmuch as the rock has been laid bare and followed only so far as it has proved useful for building stone; but it is very probable that the augite-dioryte exists in the granite in the form of a dyke. Similar appearances were fre-



a. Granite.
b. Debris from the easily weathered granular granite.
c. Augite-dioryte, forming an evident terrace-like bench.

quently encountered in the surrounding fields and farms; the augite-dioryte here is certainly so displayed that it must be styled a dyke cutting through the granular granite.

We pass now to the description of the field-appearances of those rocks which were procured from the neighborhood of lake Superior.

The St. Louis river rises in northeastern Minnesota, south of Vermilion lake, in a region of granite, gneiss and crystalline slates, which form a branch from the Laurentian formation as it is displayed in the region north of lake Superior. Shortly before the river empties into lake Superior it makes a sharp turn toward the east, and here passes through a picturesque, heavily-wooded region known under the name of "the dalles of the St. Louis river." The water has broken through the steeply tilted slates, and rushes over them in a long series of the most romantic falls and rapids; in the distance of a few miles the descent of the water amounts to 370 feet.

The beds consist of a series of roofing-slates and of a gray fine-grained rock which at first glance seems to be a dark quartzyte, or a fine-grained graywacke sandstone, the more exact nature of which it is however not possible to state. This formation, which occupies a great extent of country, forms, very probably, the representative of the Huronian as it has been described in northern Michigan, by H. Credner.* Further down the valley, toward lake Superior, the lower part of the Potsdam sandstone lies in unconformable position on the outcropping knobs of these old schists.

Going by the *Lake Superior & Mississippi railroad* to the foot of the plateau which locks in the mouth of the St. Louis river (which here spreads very widely) one beholds high cliffs of a coarse-grained rock. It is known under the name of *Duluth granite*, and as such it is far and widely distributed, and is worked into monuments. This rock has been designated in *Geological notes*

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* Compare Zeit. d. d. geol. Gesel. 1871. p. 438; and Credner's article, 1869, p. 523

on Minnesota a gabbro, or hypersthenyte, and has received, in the following descriptions, the name hornblende-gabbro (No. 6.)

The distance from the highway, where the rock is very finely exposed, to the most westerly point of lake Superior, may amount to a mile and a half or two miles, on the side of the hill, and upon the alluvium of the river at the foot of it, has been established within a few years a new city which has acquired a considerable renown as the beginning point of the Northern Pacific railroad, under the name of Duluth. In the vicinity of Duluth which was originally covered with heavy forest, only imperfect observations could be made a few years ago, yet enough to convince one that here the crystalline rocks greatly prevail, and that the old sedimentary rocks are entirely wanting.

The leading variety of rock at Duluth, which is washed by the waves of the lake, has already been described as a porphyry.* This rock now, after a searching investigation, has received the name of melaphyr-porphyry (No. 1.) In some places it changes to a beautiful amygdaloid, but without showing at any place a sharp line of separation. Besides the hornblende-gabbro and the melaphyr-porphry, there is still a third rock at Duluth, which is separated from the melaphyr-porphry by a sharper boundary. It was seen only in a little quarry, and is certainly also a melaphyr (No. 3), although of a darker color, and similar to those small dykes which cut through the syenite-granite and granite-porphyry on the Mississippi at Sauk Rapids. At the point of contact with the melaphyr-porphyry it becomes firm and compact; at a distance from it it has a middling coarse, granular structure, and the lines of the striated feldspar can be seen without difficulty.

The rocks at the western end of lake Superior belong without doubt to the age of the Potsdam sandstone, and form a part of the solidified outflows of basic crystalline rock which took place at the end of the Huronian and at the beginning of the Silurian ages. They are to be compared to the dykes and overflows of basalt and doleryte which took place in later times, and which can be traced, in the western part of the American continent, over extensive areas.

On the St. Croix river, the boundary between the states of Minnesota and Wisconsin, at a distance of 100 miles from the last described locality, appears a similar melaphyr-porphyry (No. 2), which lies immediately below the sandstone and conglomerate of the age of the Lower Silurian. In conjunction with these it forms here a narrow valley, which on account of the romantic forms of its cliffs attracts there yearly many tourists. It bears the name: *Dalles of the St. Croix river.* The bedded rocks have, in great numbers, *Lingula antiqua* and *prisca*, as well as *Orbicula prima*, and the small bucklers of *Conocephalus*, and these fossils are altogether unchanged in the granular sandstone which lies immediately on the melaphyr-prophyry. The presence of an evidently bedded conglomerate consisting of great water-worn masses from the latter rock, which in the neighborhood of the town of Taylor's Falls underlies unconformably the sandstone, points to the Huronian age of this melaphyr-prophyry.* It differs from that of lake Superior only in color. This forms frequently an amygdaloid in which the cavities are filled, it is true, solely with quartz, while the amygdaloids of lake Superior exhibit, in connection with a more changed groundmass, also calcite, epidote and a crumbling mineral rich in iron and manganese, in the amygdaloidal cavities.

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* Z. d. d. g. G. 1871, p. 441. and the ninth report of the Minnesota geological survey.

We will now. at the close of this brief account of the appearance in the field of these crystalline rocks, which we are about to describe further, bring together concisely, for the purpose of quick classification, observations made concerning their age, *viz:* The granite, syenite-granite, syenite-granite-porphyry and the augite-granite, as well as the quartz-dioryte and the augite-quartz-dioryte in the Mississippi region, probably all belong to the Laurentain formation; while the hornblende-gabbro and melaphyr-porphyry of lake Superior, and from the St. Croix river, are to be ranked in some later period, and probably to the end of the Huronian and beginning of the Silurian.

SPECIAL DESCRIPTION OF THE ROCKS.

By A. Streng.

These crystalline rocks from Minnesota can be divided, from a petrographic standpoint, into seven rock-species:

1. MELAPHYR. These are basic, augitic rocks free from hornblende.

2. Basic rocks, which, besides hornblende, contain much evident diallage as well as a great deal of magnetic and .titanic iron. These are distinguished as HORNBLENDE-GABBRO.

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* Compare *Zeit. d. d. g. G.* 1871, p. 433. Here this rock is likewise distinguished as porphyry.

3. Basic rocks which are like the foregoing in their mineralogical composition, and besides very much hornblende contain some diallage, which, however, for the most part, is intimately associated with the hornblende. These are distinguished as AUGITE-DIORYTE.

4. Quartzose dioryte, without augite—QUARTZ-DIORYTE—this is a siliceous more wide-spread species of rocks.

5. Quartzose diorytes with augite, are also wide-spread siliceous rocks, and are designated AUGITE-QUARTZ-DIORYTE.

6. Hornblendic granites are grouped under the name SYENITE-GRANITE.

7. GRANITE, *i. e.* without hornblende.

I. MELAPHYRS.

The melaphyrs appear in two varieties :

(*a.*) *Melaphyr-porphyry.*
(*b.*) *Compact or granular melaphyr.*

(*a*) *Melaphyr-porphyry* (epidote-melaphyr.)

This rock is found in outcrop in two places, viz: at Duluth on lake Superior, and on the St. Croix river on the boundary between Minnesota and Wisconsin.

1. *Melaphyr-porphyry from Duluth.*—The freshest of these rocks is on a hand-sample in which it appears along with a compact melaphyr and is sharply separated from it. Unfortunately there was present only so small a piece of this contact rock that an analysis of it could not be made. The other specimens which had been exposed to the disintegrating and changing effect of penetrating water, are not so fresh as this, and contain almost uniformly, epidote, while the before-mentioned contact-rock is free from it.

This rock consists, macroscopically, when in fresh condition, of a nearly black, or dark-green, groundmass, which is fine-grained and very compact, but which when less fresh is of a dark greenish-brown color, with numerous porphyritic bands, and contains the following minerals:

(1) A triclinic feldspar in elongated separate crystals, 5-15 mm. long, and from 0.5 to 3 mm. wide, flesh-red to colorless, brightly glistening, and strongly striated. Generally a crystal-grain consists of several rather wide bands, the first of which grows together with the second, and this again with the third, etc.

according to the rule: "The twinning axis the principal axis." The first, third and fifth bands have consequently the same position with respect to each other, as well as the second, fourth and sixth; but the first group stands to the second in the relation of the above mentioned twinning-law. The cleavage surface oP therefore reflects light in the bands 1, 3 and 5, all at the same time, while the bands 2, 4 and 6 do not reflect. But each separate band consists again of a great number of very fine lamellæ which stand to each other on the plane $\infty\breve{P}\infty$ according to the law—"the twinning axis a normal;" it is the usual polysynthetic twinning of the triclinic feldspars. The principal cleavage surfaces appear therefore striated, and the striation is parallel to the twinning lines which the broad bands make in conformity to the other law of increase.

Sometimes, though rarely, a striation of the plane oP cannot be seen; that this non-striated plane is actually oP, can easily be discovered, so long as the crystal concerned exhibits a Carlsbad twinning. But these few non-striated instances differ in no respect from the other triclinic feldspars, inasmuch as in them the striation is frequently too dim to be distinguished. Furthermore there appear isolated crystals of a sharply defined outline, regularly six-sided, which show no striation on their cleavage planes, and from their somewhat different luster appear to be a different feldspar, and probably consist of orthoclase.

(2) Far less frequent are angular, isolated, crystals, of diameters up to 7 mm., of a dark greenish-black color, which consists of a granular aggregate of a chlorite-like mineral. They are tolerably soft, and have a bright greenish-gray streak. Unfortunately in the freshest of the rock-samples nothing of this aggregate was to be seen. Sometimes little grains of iron pyrite are set in it. This chloritic mineral is here evidently the product of change from some earlier existing mineral.

(3) Associated with this dark-green mineral and often bound up within it, is also found at present a bright, greenish-yellow one, which consists of a group of small glittering individuals which must be considered epidote. Sometimes epidote-clusters, however, have become quite soft through change; and there are now parts of the rock so changed that they contain these bright greenish-yellow, softened masses, in great numbers. This epidote penetrates everywhere into the dark-green mineral, and it seems almost as if it were a product of change of the latter. In the freshest of the altered rocks it is not found.

(4) Frequently there are black grains that have a greasy or metallic luster and a conchoidal fracture. These might be either magnetic or titanic iron. In order to relieve this doubt, the finely powdered rock was subjected to a systematic washing-process, from which was obtained a black, metallic, perfectly magnetic residue. This was dissolved with acid potassium-sulphate, the solution was treated with cold water, and the filtered solution, containing sulphuric to saturation, was boiled. From this there arose scarcely a trace of turbidity, so that the mineral is not titanic iron, but magnetite, of which sometimes the octahedral form can be seen.

Sometimes this rock has the form of an amygdaloid, in which the irregularly shaped amygdules consist of more or less weathered, fine-grained clusters of epidote near the surface, and have a compact central portion of a larger feldspathic crystal, or are filled sometimes with quartz. Generally these amygdules are not so distinctly limited as those of most melaphyrs. Other roundish inclosures consist of an aggregate of two minerals—one clear, and the other entirely black but affording a reddish-brown streak; both are so weathered that they cannot be determined.

The microscopic examination gave the following :

(1.) The feldspars appear sometimes mixed through the groundmass, and sometimes in larger enclosed grains. Between crossed Nicols they are very plainly and sharply striated. But seldom are any wholly non-striated feldspars to be seen. Their color is light-brown, although the crystals are for the most part filled with substances of other colors, namely :

(*a*) Clear-brown or gray, exceedingly fine grains which permeate the feldspar, and color it brown. Only exceptionally is the feldspar free from them; and it appears then colorless ; especially is this the case in the farthest parts.

(*b*) Clear, bluish-green scales, grains and needles of the augitic portion of the groundmass.

(*c*) Bright yellow or grayish-green epidote in irregular, angular aggregations or crystals, but which are wanting in the freshest portion of the rock.

(*d*) Here and there lie black clusters of irregular grains of magnetic iron.

(*e*) Little fluid-inclusions sometimes appear, containing movable bubbles.

(2) Only in the freshest portions of the groundmass are to be seen crystals of pure unchanged augite. It is colorless to light-brown, but colored a light-green in the few fresh rocks. It is

either entirely homogeneous, or slightly fibrous, shows often regular outlines, which correspond to the forms of augite, inasmuch as the angle $\infty P : \infty P\infty$ of augite was found to be about 135°, and the angle $\infty P : \infty$ about 90°. The colorless and light-brown grains show in polarized light bright colors, but they are almost non-dichroitic. In these pure augites are found irregular fractures, also rounded, rather large opaque grains, as well as very fine, often numerously aggregated, round or elongated cavities with immovable bubbles. Even in the freshest rock can be seen numerous augites that are more or less filled with irregular grains of viridite.* Still more markedly is this the case in those portions in which the augite appears light-green and somewhat fibrous, without being dichroitic. These augites are changed; since it can be seen plainly in what way the green grains, or fibrous substance, more and more enters into them. In consequence of which the augites in many parts are replaced by a mass of viridite which is altogether homogeneous in appearance, and between the Nicols appears only light and dark, and exhibits no color at all.

Occasionally there are also larger crystals of this mineral. In reflected light they are dark, in transmitted light they are light bluish-green, but between crossed Nicols either granular or confusedly fibrous without marked color-characters. They are but slightly dichroitic or entirely non-dichroitic. Since these larger crystals correspond to the augite that is impregnated with viridite one would be warranted in regarding those grains which appear macroscopically as aggregates of fine chlorite-scales, as changed augite. These larger grains of the much-changed augite are everywhere intimately connected with quartz and epidote.

(3) In nearly all portions except the freshest, epidote is found, sometimes in large aggregates, sometimes as a portion of the groundmass or lodged in the feldspar. In the former case it is united, as already mentioned, with accumulations of viridite, and with grains of quartz. The epidote is light greenish-yellow in reflected light, in transmitted light faintly yellow, sometimes nearly colorless; it exhibits in polarized light very brilliant colors, but is not strongly dichroitic, which may stand in close connection with its bright coloration. It is not, besides, very pure, inasmuch as it is filled generally with gray granules. The larger individuals show small fissures which are parallel with the long axis, and correspond with the principal cleavage plane. In some places the epi-

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*The name viridite is used to designate a chloritic or delessite-like mineral the nature of which is not accurately determined.

dote was in columnar, plainly outlined, separate little crystals, with their terminal planes set obliquely, answering to hemi-pyramids.

(4) Quartz is found only very scatteringly in small, or sometimes larger, grains which fill the interstices between the other minerals. It is associated especially with the viriditic and epidotic grains. It is sometimes wholly clear, and nearly free from inclusions, but sometimes contains scales of augite or grains of magnetite, or spicules of apatite. Sometimes there are fluid inclusions, occasionally with bubbles that are visibly in motion. In one such cavity were seen two black grains, besides the movable bubble, which were continually thrown hither and thither upon the bubble. In the freshest part of the rock were impure grains of quartz which contained numerous needles of apatite, as well as green grains in great quantity which like amygdules were surrounded by a coating consisting of grayish-green viridite.

(5) Rarely there are rather large clusters, more frequently distinct crystals, of magnetite with sides of four or six angles.

(6) A mineral of irregular outlines, which is white or yellowish in reflected light and but slightly translucent, and filled with granular substance, is certainly a product of change from epidote or feldspar.

(7) Slender, but generally very long, nearly colorless spicules, which have pyramidal terminations, or basic pinacoids, and also very shapely six-sided sections, are apatite. They often penetrate several minerals. But sometimes these crystals are so short and thick, that it was doubtful whether they should be regarded as apatite, or might be regarded, perhaps, as nepheline, as they are soluble in acids. By treating several of the thicker crystals in nitric acid solution, with molybdate of ammonia, and others with nitric and sulphuric acids, the determination could be reached, under the microscope, that they were certainly apatite. Moreover, the sections of this apatite sometimes consist of equal-sided triangles, the angles of which are occasionally rounded, and sometimes are not. The hexagonal crystal here appears, therefore, to take a hemihedral form.

The apatite here is not everywhere entirely pure, but sometimes contains individual cavities, or a fine needle-shaped small crystal, which lies in the middle of the larger crystal, parallel to the longer axis. Very frequently are the needle-shaped apatites seen to be fissured, and even broken, and the parts a little displaced from each other.

(8) Very rarely yellow metallic grains of pyrite make their appearance.

The chemical analysis of the melaphyr-porphyry No. 1, from Duluth, gave the following result :—

Silica,	50.03
Alumina,	15.38
Sesquioxide of iron,	11.78
Protoxide of iron,	3.90
Calcium oxide,	5.39
Magnesium oxide,	3.60
Potassium oxide,	1.14
Sodium oxide,	5.01
Water,	2.73
Carbonic acid,	0.98
	99.94
Phosphoric acid,	0.33

From this analysis it appears that the rock is comparatively very basic, at least as compared with the porphyries, in which the proportion of silica generally exceeds 60 per cent. At the same time it contains so little potash that the amount of orthoclase can be only very slight—at the highest, 6.74 per cent.—while in the porphyries it is present in far greater amount. In connection with this small amount of orthoclase, also appears the low per cent. of silica. As a part of the lime is required by the augite and epidote, only a portion of it is left for the triclinic feldspar: the sodium would, therefore, exceed the lime in this mineral. But since this feldspar is filled completely with a granular substance, which can be regarded only as a product of its own decomposition ; since, moreover, the content of carbonic acid in the rock gives evidence that the lime is no longer in its original condition, and a part of it can, therefore, be removed entirely from the stone ; and since, also, finally, the high percentage of water points to a high degree of decay and weathering, by means of which, first of all, the lime would be carried away, therefore it is necessary to conclude that the feldspar has also lost a portion of its lime. This also follows from the low per cent. of silica in the rock, since if the plagioclase contained considerably more soda than lime, it would also possess a content of silica which would exceed 60 per cent. But still the rock is too basic. Therefore it is permissible to conclude that the originally highly-calcareous plagioclase stood very near labradorite, perhaps, also andesine. The similarly high content of iron, which in part is due to the not insignificant amount of magnetite, must be mainly set down to the credit of the augitic ingredients in proportion as they are altered, since the amount of magnesia is remarkably low, and the lime may be embraced principally in the epidote and the plagioclase. There remain, therefore, for the unchanged augitic mineral, besides magnesia and some lime, especially the oxides of iron, so far as they are not used in the formation of magnetite. The per cent. of apatite amounts to 81.

As it has been said already that the epidote seems to be a product of change from the green chlorite mineral, so it is necessary to hold it as highly probable, according to the microscopic examination, that the original augitic mineral decayed in various ways, sometimes forming basic epidote with the separation of free silica, and sometimes the chloritic mineral. These were deposited in the place of the augite, or in other places. These three minerals therefore are to be regarded as secondary products.

2 *Melaphyr-porphyry from Taylor's Falls*, or St. Croix Falls, on the St. Croix river, a tributary of the Mississippi. Macroscopically this rock appears porphyritic throughout, sometimes also amygdaloidal. Occasionally, however, all porphyritic structure is wanting, as, for instance, on the right shore of the St. Croix river, although decidedly porphyritic rocks exist very near. These consist of a greenish-gray to brownish, finely granular and crystalline groundmass, with numerous porphyritic crystals of brown plagioclase. In immediate proximity are found abundantly quartzose secretions that are frequently furnished with dark-green coatings, so that this is certainly to be regarded as an amygdaloid. Further there appear distinct secretions of a greenish black, chlorite-like mineral. Sprinkled in the groundmass can be seen also, with the naked eye, numerous fine grains of a bright yellowish-green mineral, which, as appears under the microscope, consists of epidote. Sometimes this epidote is liberally disseminated in those portions which are not porphyritic, so that by means of it the whole rock is rendered green. Even macroscopically it can here be seen that the plagioclase becomes changed to the dark-green chlorite-like mineral, inasmuch as it takes itself a green color even when the cleavage planes still retain their luster. Here also appear distinct sparkles of pyrite.

The microscopic examination led to the following determinations:

(1) Plagioclase, generally brown, colored by means of brown and gray particles. Besides these it contains small grains and scales of the augitic substance changed to viridite or chlorite,

which sometimes so much prevails that it nearly fills the whole plagioclase crystal, leaving only a little feldspathic residue. Further, crystals of epidote are also formed abundantly in the feldspar. The plagioclase constitutes a part of the groundmass sometimes, and sometimes it is disseminated prophyritically.

(2) The augite parts are wholly changed to viridite. The larger crystals of this mineral, which are connected closely with epidote and quartz, more rarely appear; while the smaller ones are very abundant, such as usually only fill the interstices between the laminæ of the feldspar, even constituting sometimes a part of the groundmass. In polarized light the mineral appears granular and either radiately or confusedly fibrous.

(3) One of the most common parts is epidote, which rarely occurs in large grains, but generally in rather small crystals of a bright yellow color. These are of imperfect shapes, but sometimes of regular forms. They are feebly dichroic, but show very brilliant polarization colors. Generally they are tolerably pure; sometimes they contain inclusions of quartz. Very often they are penetrated by irregular brown cracks. Rarely is the epidote filled with viridite; in nearly all cases it resists the spreading of the viriditic substance even when the feldspar itself is filled completely with it.

(4) Quartz secretions, large and small, appear in polarized light as aggregates which are enveloped in a granular green substance, and for that reason they must be considered as of amygdaloidal character.

(5) Also a white granular substance is here visible.

(6) Magnetite, and

(7) Apatite in slender needles also appear.

From the foregoing it follows that the melaphyr-porphyries from Duluth and Taylor's Falls have an undoubted porphyritic structure. The porphyritic portions consist of plagioclase, in connection with which very little orthoclase occurs; of an aggregate of chlorite-like grains (viridite) which are believed to be a product of change from augite; of an aggregate of epidote; of small amygdaloidal quartz masses, but which do not occur everywhere; and of small sparkling grains of pyrite. Aggregates of two much weathered minerals could not be determined exactly; they certainly form concretions in the two principal parts. The groundmass consists principally of plagioclase (probably also some orthoclase); augite, which, however, is principally changed to viridite; magnetite; apatite; epidote, often gresent in large quantity; a little quartz, and a grayish-white *granular substance that has resulted from change.* When the rock is amygdaloidal, quartz fills the cavities, as well as calcite and epidote.

According to this the rock is such that it is embraced with the melaphyrs; and as it has a decidedly porphyritic structure, it may be designated *melaphyr-porphyry.* Now, in most parts, except in the freshest, epidote plays a very important role; it can therefore also be designated an *epidote-melaphyr.* But because the epidote is a secondary product, as well as the viridite, which has come from a change in the augite, this latter name can be applied only to the changed melaphyr-porphyry.

(*b*) *Compact and granular melaphyr.*

This rock exists at several places.

3. Of *melaphyr from Duluth* there were only a few small pieces. It is found in close contact with the fresh melaphyr-porphyry. The definition of it is very distinct. Unfortunately the pieces for examination were too small to make an analysis of them, and the microscopic examination had also to be made on a series of fragments in order to characterize the rock definitely.

One of the two pieces, *a*, is derived from the border close by the melaphyr-porphyry; the other, *b*, is from a point further removed from it.

The contact-rock, *a*, exhibits itself as a dense, dark grayish-black rock in which under the loop can be distinguished only very fine needles.

Under the microscope can be seen, in a very fine-grained groundmass fine, slender, colorless crystalline, needle-shaped feldspar crystals, which show very seldom any twinning striation, and give no bright colors when tested in polarized light. They are not very sharply separated from the groundmass; while in the colorless, felsitic ground-paste, they blend without showing any boundaries, but in which there are enclosed numberless light-green, colorless very fine grains of an augitic mineral, as well as some large, four-angled crystals of magnetite. The colorless ground-paste hardly shows any change in polarized light; between crossed Nicols it remains dark when the stage is revolved.

The other rock, *b*, derived from the midst of the melaphyr, consists of a middling to a fine-grained mixture of tolerably bright triclinic feldspar, and an augitic mineral which is mostly lusterless and colored black, or sometimes shining with a yellowish metallic luster, and under the microscope is translucent and brownish green, and which is penetrated by numerous partly parallel or sometimes irregularly disposed, dark fissures, and is filled with pores of very irregular shapes. Occasionally grains of magnetite and spicules of apatite appear. The feldspars are often partly filled with brownish green clouds derived from the augites. Notwithstanding the brightness of the feldspar, this rock is very much changed, so that it is very soft and crumbling.

Accordingly this melaphyr in general is middling to fine-grained, but on the margins of contact it is very fine-grained. Hence one may draw the conclusion that at Duluth the melaphyr cuts through the melaphyr-porphyry, inasmuch as the latter is unchanged on its margin alongside of the melaphyr, but the former is rendered dense along this contact.

4 *Melaphyr from Sauk Rapids on the Mississippi.* This rock consists of a fine-grained, anamesite-like greenish-black groundmass of very fresh appearance, in which are enclosed narrow slender crystals, more rarely large ones, of very bright triclinic feldspar. The number of the larger crystals is so small that the rock at first sight hardly has the appearance of a porphyry.

Under the microscope the contrast between the crystalline groundmass and the larger crystals is very evident. Nevertheless it is observed at once that the crystals are of two kinds—triclinic feldspar and augite. The ingredients of the rock are, under the microscope, the following:

(1) Triclinic feldspar, with clear and nearly everywhere visible, sharp twinning lines, appears sometimes in large, sharply defined crystals, and sometimes in small bands as a portion of the groundmass. This mineral is very clear and pure, and contains only rarely in its interior a large accumulation of gray grains; sometimes are seen in it also fine needles of augite and little crystals of magnetite.

(2). Large, more or less regular crystals, are seen but seldom in perfect form, which are surrounded by a bright green hardly dichroitic border. The inside consists of a very clear-brown or brownish-violet substance which is not dichroitic or soluble in acids, and shows but very rarely brilliant polarization colors. The purest portions are penetrated by irregular fissures, (though sometimes these stand at right angles to each other,) which are filled with a black substance. The most frequent occurrence of this mineral shows it filled almost wholly with black crystals of magnetite, which often are placed in two fine linear systems perpendicular to each other. Occasionally also pyrite appears in it. Other portions are filled completely with green, confusedly-fibrous masses which are more strongly dichroitic than the unchanged mineral. This latter consists of augite which is converted through fibrous viridite into the green substance. The green border on the unchanged augite is also such a product of change.

As a part of the groundmass, augite is crowded into the angles between the feldspars. It is bright brownish-green to completely colorless, but is here also converted into a light-green, finely fibrous, mineral, so that an augite-crystal sometimes appears wholly converted to a fibrous mass; and the separate bundles of fibres are projected into the surrounding feldspar. A change here also takes place to fibrous viridite. In other places the augite is colored more brown, and then becomes either fibrous or granular, the latter by reason of the occurrence of fine dark points. Sometimes such changed augites are more strongly dichroitic, but not so that they could be shown to change to hornblende. In this augite are included now, occasionally, well-formed apparently cubic or rhombic crystals of a bright, grayish-violet color, which, unfortunately, it was not possible to determine exactly.

(3) Four-sided magnetic grains, sometimes separate, and sometimes grouped. From the pulverized rock it is possible to bring out with a magnet numerous grains of this mineral.

(4) Fine needles of apatite are seen clustered in several places.

(5) Very rarely are there scattered aggregates of quartz.

The chemical analysis of melaphyr No. 4 gave the following result:

SiO_2	48.97	
Al_2O_3	16.50	
Fe_2O_3	4.14	
FeO	6.58	
CaO	10.93	
MgO	9.85	
K_2O	0.69	
Na_2O	2.69	(with traces of Li_2O)
H_2O	1.14	
	101.49	
P_2O_5	1.18	

From this analysis it appears that the rock is basic, more basic than many other melaphyrs. It agrees in the composition nearly with Bunsen's normal pyroxenic rocks; it differs from them especially in a too small content of alumina, iron oxide and protoxide, and in a too high content of magnesia. The small ingredient of potash shows that if orthoclase is at all present in the rock, it plays a very inferior part, the highest per cent. of it possible, being only 4.08. But, furthermore, the small content of soda, as well as the high per cent. of lime indicates that the plagioclase will approach nearer to anorthite than albite. Inasmuch as abundant magnetite is found in the rock there can be left, of the small content of iron oxide seen in the general analysis, but little iron for the augitic portion. This, therefore, must be the richer in magnesia and lime, which are present in large quantities. In the presence of the fresh appearance of the fieldspar everywhere, it will be necessary to charge the high per cent. of water to the account of the green secondary product of the augites. The content of phosphoric acid answers to a per cent. of apatite of 0.44.

From the foregoing it appears that the melaphyr from Sauk Rapids consists of a groundmass which holds a basic plagioclase; augite in changed and in unchanged conditions; also, in smaller grains, magnetite and apatite; and very seldom a little quartz; and that in this groundmass larger crystals of triclinic fieldspar and augite are sparsely disseminated. Hence this rock can also be designated a melaphyr-porphyry ; since, however, the prophyritic structure is not everywhere apparent, the rock may be designated simply a melaphyr.

This rock differs from the melaphyr-porphyry, of Duluth and Taylor's Falls, mineralogically only in the smaller amount of porphyritic structure, the lack of orthoclase and epidote, the very little amount of quartz and the greater purity of the general mass, and especially of the plagioclase; chemically it differs in the smaller per cent. of alkali, water and carbonic acid, and the evidently high per cent. of lime and magnesia.

5 *Malaphyr from Watab on the Mississippi.* This rock forms a fine-grained mixture of a colorless feldspar, a bright yellowish-green augitic mineral, and of isolated, small black grains. As a secondary product pyrite is disseminated in considerable amount. The whole rock is of a greenish-gray color, and has a fracture that is irregular and even splintery.

Under the microscope the feldspar can be distinguished as triclinic, the augite is of a bright greenish-brown color, which often becomes green by viridite; it is not dichroitic, is cut by irregular fine fissures, and embraces often an abundance of small black grains. Large, four-cornered, black grains of magnetite are seen only very rarely. Also needles of apatite are sprinkled here and there.

Melaphyr No. 5, therefore, consists also of plagioclase, augite, and a little magnetite and apatite.

II. HORNBLENDE-GABBRO.

This rock is found only on the *St. Louis river near Duluth.* It has at first glance the appearance of a granular hypersthenyte. Upon exact examination it proves to be a granular assemblage of the following minerals :

(1) Strongly predominating is a brilliantly glittering gray *plagioclase* with very evident twinning lines and blue iridescence exactly like that from Labrador. Sometimes also the polysynthetic twinning is formed according to the Carlsbad law.

(2) Occasionally are seen crystals of bright red feldspar without twinning lines, with a reddish reflection similar to sunstone. This mineral is certainly *orthoclase.*

(3) A dark brownish-green, or tombac-brown, slightly lustrous, almost metallic-looking mineral, which appears fibrous and possesses two similar cleavage directions, which form with each other an obtuse angle. A great number of casual measurements gave for this angle about 125°. Since this mineral, moreover, is rather easily fusible to a black glass, it can only be *hornblende,* notwithstanding its somewhat different appearance from ordinary hornblende. This is in many places manifestly impregnated with small scales of chlorite, and it attains by that means a somewhat different nature.

(4) Light tombac-brown, metallic-lustered crystals are somewhat more seldom to be distinguished easily, with only one strongly marked cleavage direction. A second very inconspicuous cleavage plane, with faint lusterless surfaces, stands nearly at right angles with the first. Before the blowpipe this mineral fuses with tolerable ease to a dark shining glass. It is therefore, without doubt, *diallage.* It is somewhat more rare than the hornblende, but it appears to stand in no relation with it.

(5) Large black, slightly metallic grains, sometimes with perfect octahedral forms, with irregular to conchoidal fracture. The fragments drawn from the powdered rock with a magnet were dissolved in acid potassium sulphate ; the aqueous solution was boiled with addition of sulphuric acid, by which a rather heavy

white precipitate of *titanic acid* ensued. Since the distinct octahedrons give no titanium reaction, but the magnetic powder is only partly dissolved in muriatic acid—the rest being titanic acid—therefore, titanic iron certainly is connected so intimately with magnetite that it follows with it to the magnet.

(6) Very rarely is seen a light, greenish-yellow mass with conchoidal fracture, and greasy luster, which is insoluble in muriatic acid, and before the blowpipe is almost infusible. The hardness is about 5 to 6. This mineral appears to be *epidote*, whose cleavage planes could not always be recognised.

(7) Very seldom occurs a sparkling grain of *copper pyrite.*

The microscope revealed the following minerals:

(1) Very prevalent triclinic feldspar, generally tolerably pure; but sometimes wholly filled with granular masses, so that the striation in it is very difficult to observe. Also black angular grains, probably of magnetite, are disseminated here and there. The mineral is insoluble in hydrochloric acid, after standing twenty-four hours; also its powder gave after long treatment with hydrochloric acid, no trace of jelly. The triclinic feldspar, therefore, is not anorthite, but evidently comes nearer to labradorite.

(2) In several places appear feldspars which are completely filled with yellowish or reddish grains, sometimes hornblende granules changed to green viridite, but more rarely bright yellow epidote. This mineral corresponds to the red sunstone-like feldspars, in which a twinning-striation can be seen neither macro- nor microscopically. This might now be obscured possibly wholly by reason of the numerous inclosures; but when it is observed that the rock contains 1.61 per cent. of potash, it is necessary to consider it very probable that some orthoclase is present.

(3) Hornblende. This is mostly of a light to dark green color, more rarely of a brownish-green. The former is produced by viriditic substance, which often completely fills the hornblende and impairs its dichroitic character. This green viriditic hornblende is formed sometimes of parallel fibers, but sometimes of confused or radiate fibers, as appears especially between crossed Nicols. The brownish-green hornblende, without viridite, is strongly dichroitic, and appears parallel-fibrous. Sometimes it is penetrated by regular, dark, parallel, fine lines, which run at right angles with the fibrous structure, and have nothing in common with the cleavage, which, singularly, is wholly absent. Since, moreover, the margins of the hornblendes are very irregular, and always are dependent upon the feldspars between which they are embraced, it might be

doubtful, in consequence of their often weakly dichroitic character, whether they be hornblendes or not. But the above-mentioned numerous measurements of the two similar cleavage planes show, with complete certainty, that the mineral consists of hornblende, which, by the intrusion of viriditic or chloritic substance, has acquired somewhat different characteristics.

(4) Diallage appears in grayish-brown sightly translucent crystals, which sometimes are isolated between the feldspars, and sometimes are connected with the hornblendes like a mosaic, where, however, its outlines are everywhere sharp. As the grains of diallage do not encroach at all upon the hornblende, the latter must be, it seems, an original mineral ingredient, and not at all a product of change from diallage. The diallage is almost entirely non-dichroitc; it is generally delicately fibrous in parallel threads, and shows abundantly a system of parallel, sharply defined fissures, which run, however, through the fibrous structure nearly at right angles. Parallel to the fibers, which between crossed Nicols show an irregular striping of colors, is sometimes a fine black hatching to be noticed, which seems to consist of grains of magnetite arranged in lines. Only rarely does the diallage exhibit a non-fibrous center, which then is free from the dark lines which fill the remaining portion of the crystal.

(5) Large, black, metallic, angular crystals of magnetite and menaccanite. Smaller grains are embraced in the above-mentioned minerals.

(6) Irregular patches and grains of epidote of a light yellow color, slightly dichroitic, appear very rarely.

(7) Chalcopyrite is very seldom visible.

(8) Rather frequent colorless prisms, sometimes 0.4 mm. in width and over 0.8 mm. in length, can be seen in thin sections. These are occasionally six-sided. They show very brilliant polarization-colors, and contain numerous fluid inclusions, with and without moving bubbles. They are soluble in acids, give with the molybdate solution a phosphoric acid reaction, with sulphuric acid a lime-reaction, while with the treatment in hydrochloric acid no cubes of chloride of sodium appear. The mineral is therefore apatite, in thick short crystals, while fine needles of it seldom appear.

(9) The most rare are colorless grains with numerous large fluid inclusions, which generally contain slightly movable bubbles, and are broken by irregular fissures that are filled with a green

substance. They stand in close connection with bits of epidote, and are, in spite of these impurities, to be considered as quartz.

The chemical composition of the hornblende-gabbro No. 6, is as follows:

Silica	49.15
Alumina	21.90
Sesquioxide of iron	6.60
Protoxide of iron	4.54
Lime	8.22
Magnesia	3.03
Potash	1.61
Soda	3.83
Water	1.92
	100.80
Phosphoric acid	0.33
Titanic acid	0.18

It is, therefore, a basic rock, whose high per cent. of alumina corresponds closely with its abundance of triclinic feldspar. If this feldspar were anorthite, the content of lime would have to be higher, and that of soda necessarily less. Furthermore, if this feldspar were oligoclase or andesite, the per cent. of silica of the whole rock would be higher, since the 1.61 per cent. of potash presupposes a content of orthoclase of about 9.52, which drives the silica to a high percentage. Therefore, the triclinic feldspar comes nearest to labradorite. While the silica per cent rises by reason of the orthoclase, it is reduced again by reason of the percentage of magnetite and menaccanite. The meager percentage of magnesia corresponds to the low content of hornblende and diallage in the rock. The apatite amounts to 0.81 per cent.

Therefore, the hornblende-gabbro from the St. Louis river near Duluth consists of strongly predominating plagioclase (labradorite), a little orthoclase, some hornblende, diallage, magnetite and menaccanite, as well as apatite, and a very small amount of chalcopyrite, and epidote, the last occasionally associated with quartz.

III. AUGITE-DIORYTE.

This rock occurs at Richmond on the Sauk river, and at Little Falls, above Watab on the Mississippi.

7. *Augite-Dioryte from Richmond.* This rock consists macroscopically of a coarse-grained mixture, apparently of predominating black hornblende and a grayish-white triclinic feldspar, besides an augitic mineral. In addition to these there are also biotite, pyrite and perhaps zircon.

The hornblende is sometimes in distinct large crystals from 2 to 3 centimeters wide, and from 3 to 4 centimeters long; while the most of it appears in crystals of only a few millemeters in diameter. It is of a deep, black color, has a bright luster, and appears in general very fresh. Very frequent small scales of dark brown or black biotite, of irregular shapes, nestle within the cleavages of the hornblende. The latter fuses rather easily to a black shining glass.

The triclinic feldspar is clear, grayish-white, nearly colorless, in brightly lustrous crystals, with regularly angled cross-sections, and evident twinning striations. When the back-ground is dark, the feldspars often appear transparent as well as black.*

The augitic mineral is only very slightly apparent, being mostly covered by hornblende. It is light, yellowish-brown or grayish brown in color, and slightly lustrous; but it becomes much brighter when the rock is wet, since it then acquires a yellowish, metallic lustre. Two cleavage planes can be seen cutting each other, nearly at right angles, but which are not very distinct, and appear not to be exactly similar. The mineral is somewhat fibrous, and fuses not very easily, in fine splinters, to a gray bead. It exists in less amount than either of the other constituents, and is itself to be seen under the lens with great difficulty.

Biotite, in thin brown or nearly black scales, is mingled especially with the hornblende.

Magnetite is recognizable, but without certainty; pyrite sometimes is disseminated in small grains.

Very rarely can be seen small crystals of a hyacinth-red color, which are brightly shining, but whose form cannot be ascertained. Perhaps they are little zircons.

The microscopic examination gave the following:

(1) The plagioclase shows very distinct color bands; it is generally very clear and pure. Here and there appear little needles of apatite in it: also shreds of hornblende and grains of magnetite; also gray kernels of irregular shapes are seen sometimes in groups. But very rarely does the feldspar appear without striping.

(2) The hornblende is of green and brown colors, strongly dichroitic with parallel cleavage, or with two cleavage systems that cross each other at a small angle. Its outlines are irregular. It sometimes embraces little grains, but in no great quantity; and very rarely cavities with movable bubbles.

(3) The augitic mineral is chiefly in immediate but irregular contact with hornblende. It can be traced out sharply in distinc-

tion from it, but its outline is irregular. Sometimes also specimens of this mineral lie in the feldspar, and also often little crystals of hornblende are in the center of the augite in such a manner that they intersect each other like a patience-play (Geduldspiel). It is only rarely that the augitic mineral is somewhat regularly outlined, but not so that the measurements of angles could be taken. It could only be discovered that the angle between two sides of such a section was more obtuse than the columnar angle of hornblende. The mineral is cut by irregular fissures which are only occasionally nearly parallel, but generally they go in all directions, cutting each other at all possible angles. It is generally very finely parallel-fibrous—that is to say it consists of a series of lamellæ parallel to each other, but which often wedge out in both directions, so that the fibers sometimes are in right lines, and sometimes appear slightly undulatory. The cracks which cut the mineral appear generally to have no reference to the direction of the fibers. Here and there is an appearance as if the cracks ran preferably at right angles to the fibrous structure. This augite is of a very bright brownish-red color. Between crossed Nicols it shows bright polarization colors, particularly in those spots where it is not remarkably fibrous. In the fibrous portions also there is a fine color-striping apparent, though this does not always appear distinct. It is therefore probable that a polysynthetic twinning structure is the fundamental cause of the fibrous structure.

This mineral is remarkably and strongly dichroitic in bright green and red colors. Beginning at the fissures which penetrate it, and along the margins, it undergoes a change which gradually embraces the whole mineral, so that the different stages of this change can be seen in the different thin-sections. The fissures are filled, for instance, with a bright grayish-green, non-dichroic substance which encroaches more and more on both sides, so that only the central parts, or kernels of the mineral, of more or less size, are visible, in its unchanged red color; and in many instances they are entirely faded out. At the same time the fibrous portions undergo no change, although they frequently appear more distinct. In many instances the augitic mineral consists only of bright green fibrous crystals. When the mineral is so changed it is not dichoric; so that it can with all certainty be seen to be augite. But the original red mineral can be only augite. The absence of a clearly defined cleavage-system, as it appears in connection with the adjoining hornblende, the very distinct optical characters in common and polarized light, the fibrous structure, the difficult fusibility, the presence of two cleavage surfaces nearly at right angles, visible even with the naked eye. distinguish this mineral from hornblende, and show it to be augite. Microscopically it appears very much like diallage, in which professor Zirkel, who had the goodness to make an examination of it at Jena, agrees with me. Besides, individual crystals appear which are pierced by parallel hornblende-lamellæ,in such a manner that augite and fibrous hornblende alternate with each other.

(4) Biotite appears in bright, grayish-brown, transparent, angular sheets.

(5) Quartz is very distinct in small grains in which sometimes are fluid inclusions with rapidly moving bubbles.

(6) In places numerous crystals of apatite appear, especially in the feldspar, but those places are rare. Sometimes the apatite is in isolated crystals.

(7) Magnetite is for the most part only scattered and rare. Only occasionally is it in somewhat thicker and crowded large irregular masses. The larger portion of a slide is free from it. For that reason it was, that no metallic residue could be obtained from the wet powdered rock. With a magnet only could individual grains be drawn out.

The chemical analysis of the augite-dioryte No. 7, gave the following result:

Silica	48.87
Alumina	18.72
Sesquioxide of iron	3.28
Protoxide of iron	5.55
Calcium-oxide	11.93
Magnesium oxide	9.53
Potassium oxide	0.73
Sodium oxide	2.10
Water	0.93
Carbonic acid	trace.
	101.64
Phosphoric acid	0.08

This rock therefore is also basic, and agrees with the normal pyroxenic rocks of Bunsen. Yet some free quartz is present. The high per cent. of lime and magnesia agrees with the abundance of plagioclase, hornblende and diallage; likewise the low per cent. of iron oxides with the meagerness of the magnetite, the low per cent. of potash with the absence of orthoclase, of which at the most 4.21 per cent of the rock could consist. The small per cent. of soda and the large per cent. of lime, considered in respect to the large amount of plagioclase present, warrant the conclusion that the latter comes nearer anorthite than albite, that it therefore is either labradorite or andesine. The small amount of water, which in a great measure consists of hygroscopic water, shows also that the rock is not entirely fresh. The apatite amounts only to 0.19 per cent.

The augite-dioryte No. 7 from Richmond therefore consists of a coarse to middling coarse-grained mixture of plagioclase, hornblende and diallage, with which is mingled biotite, a little pyrite and magnetite, a very little quartz, apatite, and very rarely perhaps zircon.

8. *Augite-dioryte from Richmond.* (Bareman's farm.) Although most intimately related to the foregoing in its outward appearance, this rock nevertheless shows a difference:

Macroscopically it appears as a fine to middling coarse-grained mass of very brilliantly shining, colorless, plagioclase, which sometimes also exhibits the Carlsbad twinning; also of black, very brightly lustrous hornblende, within which also very rarely isolated scales of biotite are visible; and of an augitic mineral, gray to browish-green in color, which appears in little grains. This last mineral is recognized plainly in places where the plagioclase forms white granular aggregates, in the neighborhood of which these greenish-brown grains are plainly secreted. They possess, so far as can be seen, not the cleavage planes of hornblende. Small black specks are magnetite, since such can be drawn out of the powdered rock with a magnet.

Isolated masses are seen that reach three centimeters in length and two in width, which consist of an aggregate of light-gray feldspars which sometimes are plainly striated, sometimes show no striation, but yet in other respects can not be distinguished one from the other.

From the foregoing therefore this rock differs in its lack of large hornblende crystals, in the presence of large aggregates of feldspar, and in its greater richness in magnetite.

Under the microscope can be recognized the following mineral ingredients:

(1) Very clear, wholly colorless, strongly striated plagioclase, which contains apatite in remarkable quantity, black grains of magnetite, separate little crystals of hornblende, and augite. Occasional non-striated crystals might perhaps be orthoclase.

(2) Quartz is apparently rare, in irregularly outlined masses lying between the feldspar crystals, with numerous cavities which contain sometimes movable bubbles.

(3) Hornblende, of a dark greenish-brown color and strongly dichroitic; which is cut by cleavage planes that are either parallel or form an obtuse angle with each other. Its outlines are very irregular. Only the little crystallites which lie scattered in the plagioclase, show sometimes regular forms.

(4) A dichroitic mineral (dichroitic in light green and red colors) appears in great quantity, perhaps even exceeding the hornblende in amount, which is colored light grayish-green to brownish-green. This differs from hornblende essentially, both in common light, on account of its bright colors, and between the Nicols by reason of its brilliant polarization, since hornblende appears very dark between crossed Nicols. It is either not at all fibrous, or slightly so, or completely fibrous. The fissures which cut it are generally irregular, and not entirely in right lines. Sometimes they run nearly parallel, and then pass through the fibrous structure nearly at right angles. But with a higher power a system of fine cleavage can be seen, which runs parallel with the fibrous structure. This latter is made apparent by the occurrence of fine parallel light or dark brown lamellæ and needles, but also partly by the existence of very fine cleavage lines. The outlines are very rarely entire, and preserved in lines. They are then quadratic and rectangular forms with imperfect or dulled corners: so that such a section could be produced only by the combination ∞P. ∞P∞ ∞P∞ of augite, but not of hornblende. The fibrous structure and the fine linear cleavage run parallel to that line which corresponds to a plane ∞P∞. Occasionally this mineral is more grayish-green, and little dichroitic. In spite of the dichroitic character of this mineral as seen in most of its individual grains, it cannot be considered hornblende, but must be referred to augite, possibly diallage. There are, moreover, in it fluid inclusions with movable bubbles.

(5) Rather frequent grains of magnetite are seen. These are more isolated, and are four or six angled.

(6) Apatite in extraordinary amounts, in fine needles, especially in the plagioclase, has been mentioned already.

(7) Yellow metallic opaque grains are certainly pyrite.

Chemical analysis of augite-dioryte No. 8 from Richmond.

Silica	52.00
Alumina	15.75
Sesquioxide of iron	3.55
Protoxide of iron	12.84
Calcium oxide	7.39
Magnesium oxide	3.42
Potassium oxide	1.24
Sodium oxide	3.37
Water	0.35
Carbonic acid	0.11
	100.02
Phosphoric acid	1.06

Hence it appears that this rock is richer in silica, protoxide of iron, phosphoric acid, and alkali than the foregoing, but poorer in lime, magnesia and alumina. Its combinations must therefore be different. The feldspar here appears the richer in soda, since the high content of soda comes in connection with a much lower amount of alumina. Hence the feldspar may in this case also belong in the acidic portion of the feldspar series. The potash ingredient corresponds to a per cent. of orthoclase at least of 7.33. The high amount of protoxide of iron must be attributed in part to the magnetite present, and partly to hornblende and diallage, because the rock is remarkably poor in magnesia. The large amount of phosphoric acid is a very distinctive character; it requires apatite to the amount of 2.59.

The fresh condition of the rock is evident here also in the small amounts of carbonic acid and water.

The second augite-dioryte from Richmond (No. 8) consists therefore of a compound of plagioclase (with perhaps some orthoclase), hornblende, diallage, magnetite, apatite, very little biotite, quartz and pyrite.

At Little Falls, furthermore, are distinct augite-diorytes, with several modifications, from the same range of rocks, each of which we will particularly describe.

9. *Augite dioryte (a) from Little Falls.* This rock constitutes a granular mixture of plagioclase, which is light-red to white, in small amount, and but slightly lustrous, very abundant black, shining, fibrous hornblende, in large crystals, and bright grayish-green augite, with parallel fibers. The last is also in less amount than the hornblende; it is dull, or slightly shining, and often has a border of shining hornblende. Occasionally, this min-

eral is somewhat more bright and lustrous, and then exhibits a very evident cleavage, which cuts directly through the indistinct boundary which outlines the border of the hornblende prism. These minerals, therefore, are regularly built upon each other, and the augitic mineral is diallage.

This stone contains no magnetite, since nothing can be drawn from its powder with a magnet. Furthermore, titanic iron is not present, inasmuch as in the same powder no metallic residue is found on washing.

Biotite appears only very rarely.

Under the microscope the rock shows the following composition:

(1) Feldspars, which appear mostly as aggregates of smaller crystals. They are generally striated, but often the striation can not be distinguished, especially if they are filled with a gray granular substance. Sometimes there is only a narrow border that is free from this granular structure, while the inner portion is filled with it.

(2) Quartz appears only subordinately, and in small, crowded pieces.

(3) Hornblende is in larger, generally clustered, united crystals, whose outer borders are sometimes regular and sometimes irregular. They are of a greenish-brown color, strongly dichroitic between crossed Nicols, showing brilliant colors, are plainly cleavable, and are rich in inclusions of granular plagioclase and little crystals. Sometimes in polarized light they exhibit twinning lines, by means of which one crystal is separated into two parts placed closely alongside of each other, which show different polarization colors. Sometimes on the border of these are several narrow lamellæ, so that in place of one of the twinning-bands may be seen several very fine color-bands.

(4) Augite appears in the thin section much more abundant than in the hand sample. It is mostly grouped in clusters of several crystals, generally by itself, but sometimes intimately connected with hornblende. It is partly entirely colorless, and partly colored bright green, in one place very pure, and in another having a gray granular substance or dark yellowish-brown spots of hydrated iron oxide, with which indeed it is often wholly filled. It appears either wholly compact, or cut through by numberless clefts, which are sometimes parallel, but also run sometimes very irregularly. The augitic mineral is but little or not at all dichroitic,

shows bright polarization colors, is very frequently perfectly fibrous, and has irregular outlines.

(5) Here and there appear short prismatic crystals, about 0.18 mm. thick, with regular six-sided outlines, and often numerous diagonal cleavage-lines parallel to the plan oP, which would hardly be taken at the first glance for apatite, because they are short and thick. Inasmuch as this mineral, which is soluble in acids, gives no cubic precipitate of salt with concentrated hydrochloric acid, but with sulphuric acid a lime reaction, and with molybdic acid a phosphorous reaction, it must be apatite. Slender crystals of the same, moreover, also occasionally are found.

(6) Some black metallic grains, very sparsely distributed, and of irregular form, are probably magnetite or titanic iron.

The chemical analysis of the augite-dioryte, No. 9, gave the following :

Silica	46.52
Alumina	13.87
Sesquioxide of iron	3.71
Protoxide of iron	8.79
Lime	11.00
Magnesia	10.04
Potash	1.01
Soda	2.13
Water	1.05
Carbonic acid	0.47
Total	98.59
Phosphoric acid	0.32

The rock is, therefore, a very basic one, notwithstanding its content of quartz, and is remarkable for its high percentage of magnesia, lime, and protoxide of iron, owing to the predominating abundance of hornblende. But since generally hornblende contains more magnesia than lime, and diallage is present in too small quantity to lay any claim to the amount of lime indicated, a part of the lime must belong to the plagioclase. Hence it might be concluded, from the petty amount of quartz seen in the thin section, that the plagioclase comes nearer anorthite than albite. The small percentage of potash in the rock might be referred to the presence of orthoclase, amounting at most to 5.96 per cent.; but is more probably only an accidental ingredient of the plagioclase. The content of apatite amounts to 0.78 per cent. That the rock is not entirely unchanged is shown by the presence of water and carbonic acid.

The augite-dioryte No. 9, from Little Falls, consists, therefore, of a basic plagioclase (perhaps with some orthoclase) very much hornblende, some diallage, isolated large apatite crystals, a very little quartz and biotite, and a very small quantity of magnetite and titanic iron.

10 *Augite-dioryte* (*b*) *of Little Falls.* Like the foregoing, this rock also consists of a granular mass; embracing abundant, brightly lustrous, black hornblende; white to reddish fine grained feldspar on the cleavage planes of which there can be seen generally no twinning lines; scattered gray quartz; occasional scales of biotite, and specks of pyrite, as well as a light-grayish-green to light-brown augitic mineral which has a border of lustrous hornblende, but which is very much changed. For that reason although the relation of its cleavage-planes to those of the hornblende-band surrounding it cannot be learned with certainty, yet it has the appearance here as if the cleavage-planes of the augite cut off the cleavage edges of the hornblende; and hence the mineral can be considered diallage.

Under the microscope can be seen occasionally rather large, apparently pure crystals without any trace of striation. These can probably be considered orthoclase. This mineral embraces sometimes numerous gray or white grains, so thickly crowded that it becomes now translucent. The triclinic feldspars appear in numerous smaller crystals which often are apparently pure, but also are filled sometimes with grayish grains. Quartz appears scattered in larger or smaller kernels embraced between the crystals of feldspar; it is uncommonly rich in fluid-inclusions of many forms, and often with rapidly moving bubbles. The hornblende is of a green-brown color. It is strongly dichroic, and in all respects as in number 9. The augite is rarely visible. It forms the center of hornblende crystals, is either light-greenish-gray, nearly colorless and non-dichroic, or green, granular and fibrous, and then somewhat dichroic; and is cut by irregular fracture lines. Quite common are isolated crystals of apatite, which have a thickness exceeding 0.2 mm. They can be distinguished by the reactions already mentioned. Brown biotite scales, as well as black grains of magnitite or of titaniferous iron, are rare.

The chemical analysis of the augite-dioryte No. 10 gave the following result.

SiO_2	52.35	
Al_2O_3	15.72	
Fe_2O_3	2.90	
FeO	7.32	
CaO	8.98	
MgO	7.36	
K_2O	1.32	(with a small trace of Li_2O)
Na_2O	2.81	
H_2O	1.35	
CO_2	0.23	
	101.34	
P_2O_5	0.30	

The higher content of silica in this rock above the former is in consequence of the greater amount of quartz present. That the amount of orthoclase cannot be very great is shown by the small amount of potash. It reaches therefore not to exceed 7.8 per cent. The lower percentage of lime and magnesia in comparison with No. 9 is in consonance with a somewhat less amount of hornblende, and perhaps also with a lower amount of lime in the plagioclase. The apatite reaches 0.73 of the rock.

Augite-dioryte No. 10 consists therefore of plagioclase, probably some orthoclase, some quartz, much hornblende, a little diallage, a very little apatite, biotite and magnetite or titanic iron.

11. *Augite-dioryte (c) from Little Falls.* Makes a medium-grained mass of white, triclinic feldspar whose striation cannot always be distinguished; abundant hornblende; bright grayish-green to bright-green diallage, which appears to be present in but small amount, and rather frequent brown scales of biotite.

Under the microscope it can be seen that the feldspar is generally striated, and that it is pure and clear only about its edges, but its interior is filled with granular substance; that quartz is but seldom present, and the hornblende is the same as in Nos. 9 and 10. The diallage is colored light-green, or flecked with light and darker green. It is sometimes as grains in the center of hornblende, sometimes regularly connected with it, and sometimes existing alone in the feldspar. Sometimes the external borders of the crystals are formed so sharply that they could be measured. The angle found amounted to about 137°, which answers to the angle $\infty P : \infty \bar{P} \infty$ of augite. The diallage is not in the least dichroic; it is cut by fissures that run sometimes parallel to the long axis of the crystal, and sometimes in every direction. Diallage here is found in remarkably large amount, so that it falls but little below hornblende. Sometimes are seen bright greenish brown scales of biotite; finally, apatite appears in short thick crystals, and long slender needles.

The augite-dioryte, No. 11, differs, therefore, from No. 9 and No. 10, especially in its richness in diallage.

12. *Feldspathic augite-dioryte (d) from Little Falls.*—This rock consists macroscopically, of a medium-grained mass made up of an abundant white or grayish-white feldspar, which appears very dense; that is to say, like a dense mass of very fine grains of feldspar, and of black, brightly lustrous elongated crystals of hornblende, which, however, is less abundant than the feldspar. Mingled with both these principal ingredients is a bright green augite, which forms the central kernel in the hornblende grains. Unfortunately, the cleavage of the augite is not sufficiently evident to show with certainty whether there is a regular passage in the hornblende. Quartz and biotite are not present.

Under the microscope it can be seen at once that the feldspar consists constantly of very numerous small crystals intact on all sides, generally showing a clear, bright, narrow border, and an impure center filled with a gray granular substance. Border and center are sharply defined, especially in polarized light, and the boundary corresponds exactly with the outer surface. Both are triclinic uniformly, and it is seldom that no twinning-striation can be distinguished.

Embraced between the feldspar crystals can be seen, much more rarely, isolated segregations of quartz, which contain fluid-inclusions with moving bubbles.

The hornblende appears brownish-green, is strongly dichroic, and suffers on all sides from the encroachments of the forms of the feldspar crystals, so that but few opportunities are found to see the natural borders of the hornblende itself. Many crystalline grains of plagioclase are also included.

The augite is quite colorless, or light-green. It appears only as kernels within the hornblende. and is pierced with fissures that are nearly parallel, or wholly irregular, It is not dichroic, generally very pure, but embraces dark, granular impurities along some of its fissures and on its edges. The surrounding band of hornblende generally is complete for each individual.

Apatite appears, sometimes in thick and sometimes in needle shaped crystals, which often are in groups.

Small scattered grains that are opaque and have a metallic luster, are probably magnetite or titanic iron.

The chemical composition of augite-dioryte No. 12 is as follows:

SiO_2	51.27	
Al_2O_3	23.72	
Fe_2O_3	1.35	
FeO	3.81	
CaO	10.50	
MgO	3.30	
K_2O	0.65	
Na_2O	3.35	(with a very small trace of Li_2O)
H_2O	1.23	
CO_2	0.35	
	99.53	
P_2O_5	0.37	

This rock contains, notwithstanding its scattered grains of free quartz, only a low percentage of silica. The high percentage of alumina and lime corresponds with its large amount of lime-feldspar; that this is not anorthite is declared by the percentage of soda. The plagioclase hence comes very near labradorite. Orthoclase appears to be wanting—the small amount of potash could be embraced in the triclinic feldspar; it would at the most require a percentage of 3.84 of orthoclase. The small amount of magnesia gives a datum for calculating the amount of hornblende in the rock. Apatite reaches 0.90 per cent. Notwithstanding its very fresh appearance, this rock still has evidently some contained water and carbonic acid.

The augite-dioryte No. 12 consists, therefore, of plagioclase, hornblende, augite (probably diallage), a little quartz, very little magnetite or titanic iron, and apatite.

According to the foregoing the augite-diorytes consist, in general, of a combination of plagioclase, which approaches nearest to labradorite (perhaps with some orthoclase), hornblende, which very commonly is associated with and regularly changed into diallage, biotite, magnetite (perhaps occasionally a little titanic iron), and apatite; along with which only a very small amount of quartz is also embraced. The rock approaches hornblende-gabbro, but is very poor in augite; which, however, can be observed in the form of diallage, though not in all cases, while true hornblende-gabbro contains very distinct diallage in noticeable quantity, as well as a large amount of magnetite and titanic iron, which is not the case with augite-dioryte.

Accompanying the diorytes from Little Falls (and appearing in that vicinity) is a rock which perhaps is only a modification of the same species, though it differs from them in several particulars; so that it possibly may be pronounced another rock. More exact investigation in the region and *in situ* can alone determine this. It therefore will provisionally be classed as an augite-dioryte.

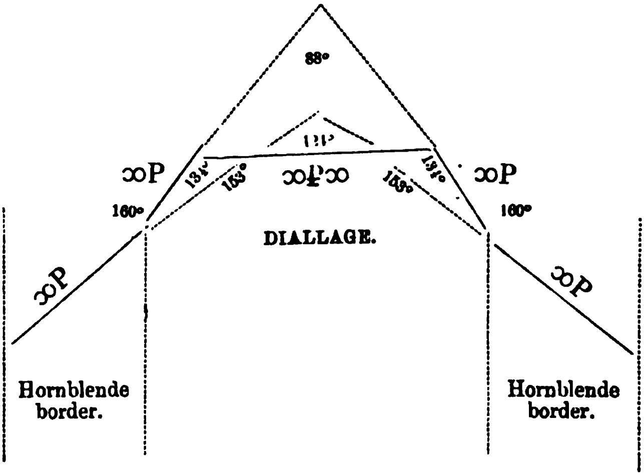
13. *Augite-dioryte (e) from Little Falls.*

This singular rock appears, macroscopically, to consist of a medium-grained assemblage of the following minerals:

(1) Feldspar grains of a bright yellowish-gray, or dirty-white color, sometimes reflecting the light brightly, though principally but slightly lustrous; for the most part with evident twinning-striation, rarely without it.

(2) Diallage. This mineral is present in very large amount, sometimes in rather small grains, sometimes also in large individual crystals, with four angles, eight to ten millimeters in size. It is of a light green, or brownish-green, or yellowish-green color, lustrous or but slightly so, often only shimmering; it fuses with some difficulty in thin slivers, under a feeble flame, to a grayish-green glass; and possesses three rather evident cleavage-directions. Those two that are less evident form with each other an angle of about 88 degrees. That which is most distinct cuts directly across the apex of the other two, that is, it forms with each of them an angle of about 134 degrees. Should the two former planes be considered ∞P, then the principal cleavage-plane would be equal to $\infty \bar{P} \infty$, as is the case in other diallages. The fusibility of the mineral prevents its being styled enstatite; if it were hypersthene it would be fusible with more difficulty, also the color of the bead would show a high content of iron, which is not the case. It must therefore be pronounced diallage, of which, it is true, the principal cleavage-plane is generally far more perfect than in this mineral, while the tendency of cleavage in accordance with the columnar planes is usually hard to distinguish, though here it is quite prominent.

This diallage here never appears alone, but it is constantly furnished with a lustrous brownish-black border of hornblende, which grows upon the central grain of diallage in such a manner that the cleavage-plane $\infty \bar{P} \infty$ of the latter exactly forms a right angle with the columnar planes of the hornblende — that is to say, forms an angle in both directions with the cleavage planes of the hornblende of about 153 degrees, while these latter make external angles of 160–161 degrees with the cleavage-planes ∞P of the diallage, as can be seen in the following diagram:



The width of this border of hornblende is very variable; sometimes it is very narrow, in other places it is wider, even so wide that but a very small nucleus of diallage remains. Here obviously the hornblende results from the diallage, and it is possible that wherever hornblende, in the rock, exists without a central grain of diallage, it may also have been produced from diallage, because it differs in no respect from the hornblende borders. Unfortunately, it was not possible to extract a sufficient quantity of the diallage, free from hornblende, for analysis of each separately.

(3) Hornblende. This appears sometimes alone, and sometimes as borders about the diallage. It is present in large quantity, of a brownish-black color, brightly lustrous, fibrous, and plainly cleavable.

(4) Biotite, in numerous, brightly-lustrous scales, of a dark-brown color.

(5.) Quartz can be distinguished with certainty, in light gray grains.

The microscopic examination gave the following result:

The feldspars, in by far the greater number of cases, are marked by very beautiful, remarkably distinct, lines of twinning striation. They are tolerably pure, and contain generally only small, irregular specks and scales, but at the same time also granular aggregations which often form an inner nucleus with a distinct outline, parallel with the outer clear border, and especially when the twinning lines are wanting. Sometimes these crystals, particularly the impure ones, are formed of successive layers, each layer being very thin, placed over each other like numerous laminæ ; which have the deceptive appearance of a twinning striation; and since the stone has a high percentage of potash, one would be justified in considering these feldspars without twinning lines as orthoclose.

The hornblende is brown, sometimes also green, in the latter case impregnated with viridite, strongly dichroic, cut either with parallel cleavage, or with systems of cleavage, that make an angle with themselves of about 125 degrees. The outlines of the hornblende are sometimes very irregular; especially in the larger grains that are associated with diallage ; for the most part exhibit the forms of long, slender, rather straight crystals (cut lengthwise,) in which, however, cannot be seen the characteristic form of hornblende ; sometimes thin sections appear, though not often, accidentally parallel to oP, in which the sides run parallel to the cleavage lines, which intersect each other at 125 degrees. These are, therefore, forms that are peculiar only to hornblende, and they cannot be present in augitic minerals. Such hornblendes, therefore, are in no case secondary products of change from augite, because they are present in their own forms.[*]

Diallage is visible almost entirely as internal central grains within the hornblendes. It is then colored very light-green, or is colorless, but sometimes also darker green by reason of a mingling of viridite; it is not dichroic, but shows between the Nicols bright polarization colors. It is cut by fissures which seldom are parallel to each other, but for the most part run very regularly. The hornblende borders either form somewhat large crystallites lying thickly upon each other, or consist of a fibrous collection mingled with diallage and filled with viridite, or they are formed very perfectly so that the individuals that constitute them have everywhere a parallel position. The regular outline is lost where it adjoins the diallage, as it is continually and very irregularly changing outward and inward, in proportion as the hornblende encroaches more or less on the augite; indeed it advances along the fissures very much like veins far into the interior of the diallage, so that one cannot escape the conviction that the hornblende is here a product of change from the diallage. This conviction might also be made more general, so as to hold the smaller hornblende crystals as completely changed augite; contrary to which however the fact remains that these smaller hornblende crystals have their own independent forms.

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[*] Compare, however, more recent statements by Prof. Irving—*Am. Jour. Science and Arts*, 1883.—N. H. W.

It is necessary therefore to conclude that the hornblende in this rock is sometimes an original and sometimes a secondary product.

The diallage sometimes is twinned, several wide laminæ alternating with each other conformably to the orthopinacoid. Parallel to this twinning the first fissures run.

Magnetite, or titanic iron appears but very rarely.

On the other hand quartz is rather abundant, embraced between the straight borders of the feldspar crystals. It is also here very pure, and contains fluid-inclusions in which, however, but very rarely can be seen any moving bubbles.

The apatite crystallites are narrow and long. as well as short and wide, and rather abundant. The latter would be known as apatite by their chemical reaction.

Biotite is known by its dark greenish-brown, entirely non-translucent plates, which have always an irregular outline.

The augite dioryte No. 13, from Little Falls has the following composition :

SiO_2	56.49	
Al_2O_3	17.49	
Fe_2O_3	3.51	
FeO	3.72	
CaO	6.64	
MgO	4.01	
K_2O	3.20	(with a trace of Li_2O)
Na_2O	4.49	
H_2O	1.14	
CO_2	trace	
	101.19	
P_2O_5	0.18	

Here it appears, at the outset, that this rock no more belongs to the class of basic rocks than the foregoing rocks, but, indeed, has a content of silica somewhat higher, because, as has been found, it possesses a notable amount of free quartz. The small quantity of iron is due to the presence of a little magnetite or titanic iron. Very noticeable is the high percentage of potash, which, if it were turned entirely to the formation of orthoclase, would supply to the rock a percentage of 18.92 of this mineral, which would be nearly one-fifth of the whole. But the microscopic examination teaches that by far the largest part of the feldspar is plagioclase, and that only a few of the larger crystals consist of orthoclase. Therefore, it appears that a large part of the potash must belong to the plagioclase. The small amount of lime seen in the rock is divided between diallage and hornblende on the one side, and the plagioclase on the other. To the latter, therefore, belongs only a portion of the lime present, but nearly the whole of the soda, amounting to 4.49 per cent., to which also a part of the potash must be added. The plagioclase, therefore, which composes a predominant portion of the rock, is rich in alkali, and comparatively poor in lime; it will, therefore, come nearer to albite than to anorthite, and it would not be amiss if it should be reckoned as oligoclase, or perhaps, as andesite. That diallage and hornblende are less in amount than feldspar, is shown by the low percentage of magnesia. As there is almost no magnetite nor titanic iron, nearly the whole of the iron-oxide is due to the diallage and hornblende, which also lay claim to a part of the lime, and very likely, also a part of the soda. Apatite reaches 0.44 per cent.

The augite-dioryte (*e*) *from Little Falls, No. 13 consists, therefore, of plagioclase* (*oligoclase or andesite*), *some orthoclase and quartz, of hornblende and diallage, intimately associated with each other, biotite, a very little apatite, magnetite or titanic iron.* The rock is distinct therefore, in its mineralogical and chemical composition, from the other augite-diorytes from Little Falls by reason of its high per centage of silica, its comparative richness in quartz, its content of potash and orthoclase, as well as of oligoclase and andesite, while the rocks of the vicinity contain labradorite, at least a basic plagioclase, and finally by reason of its greater richness in diallage. In consequence of which this rock is related to hornblende-gabbro by reason of its diallage, to augite-quartz-dioryte by its containing quartz, but to the syenitic rocks by its containing quartz and orthoclase. Therefore there might be a temptation to separate it from the augite-diorytes, as a different rock, standing between syenite and gabbro. The fact that the augite-diorytes from Little Falls are themselves very changeable in their composition. and that the rock in question appears to be associated with them, was sufficient, instead, to determine us to unite it *provisionally* to the augite-diorytes.

IV. QUARTZ-DIORYTE.

This rock occurs at Sauk Center and Little Falls, at the latter place, though, only in a few limited courses in the midst of mica schists.

14. *Quartz-dioryte from Sauk Center*. This comprises, macroscopically, a medium grained mixture of the following minerals.

Feldspar is generally grayish-white, sometimes brightly lustrous, but generally dull and not very fresh. Wherever the principal cleavage-plane is sufficiently bright the twinning-striation can be seen, and hence the feldspar seems to be triclinic.

Quartz is abundant in gray, irregularly shaped grains.

Hornblende is of a dark brownish-black color, but not so strongly lustrous as other fresh hornblendes. It is fibrous, and only rarely appears in independent grains, but generally in groups. In amount it is about the same as the feldspar.

Titanic iron is in very small, dark gray, nearly black, grains, with a black metallic luster. In order to determine this mineral with care the powdered rock was carefully washed. The last remaining grains, with metallic luster, were, it is true, somewhat magnetic, but they gave before the blow-pipe an evident titanium reaction, and were entirely insoluble in muriatic acid.

Pyrite in scattered specks.

Epidote in secretions that are small, scattered, and of a bright green color.

The microscopic examination gave the following :

The feldspar is for the most part only translucent, and is filled with a white granular mass. These granular inclusions also generally obscure the color lines in polarized light, which, nevertheless, here and there come out very evident. The mineral therefore might be taken either for a triclinic feldspar or orthoclase. But the latter certainly can be present in only very small quantity, on account of the small percentage (1.02) of potash found in the aggregate analysis. But the feldspar contains, besides the fine white grains, also very numerous green grains and scales of a substance like viridite.

The hornblende appears in dark-brown, or greenish-brown individuals generally bounded by right lines, or irregular groups of the same. It is strongly dichroic, cut by numerous cleavages, which are parallel or so directed as to intersect each other at obtuse angles. Sometimes it shows itself in linear or nettedly-fibrous aggregates, which often are crowded with viriditic substance. This granular viriditic substance also encroaches on the hornblende in so large masses, in some parts, that it is no longer recognizable. The hornblende here also sometimes contains frequent cavities with movable bubbles.

It would seem as if here also, in some of the hornblendic grains, an augite center exists, and in some cases the center acts, especially in polarized light, differently from the border. But, as in these cases the inner portion is often filled with viridite, it is impossible to know the presence of augite with absolute certainty, though it can be considered very probable.

The quartz is embraced between the feldspar and hornblende crystals in considerable amount, but appears also sometimes in original hexagonal outlines. It contains rarely numerous pores and little sacks, with movable bubbles, or with colorless cubes, or with both at the same time; rarely with many needles of apatite, and sometimes inclusions of viridite.

Epidote is of a light greenish-yellow color, and at the same time but little dichroic, but shows between the Nicols lively polarization-colors. In direct light, it appears yellowish-white. Generally it is pierced by numerous irregular, very fine cracks and cleavages, and often is tolerably pure; yet very often grains of viridite show themselves, sometimes entirely filling it. Likewise, sometimes, brownish-colored or fine gray grains are very numerous in it. The outer boundary of the epidote is very seldom straight, but on the contrary, very jagged.

The titanic iron is quite often in six-sided individuals, sometimes in groups.

Also, apatite is in comparatively large amount, being, indeed, in all parts; it is sometimes in fine needles, sometimes in rather large crystals, over two-tenths of a millimeter long and seven-hundredths of a millimeter wide, or in hexagonal thin-sections. Not only does the angle P : ∞ P. which many times was determined at about 130 degrees, identify this mineral as apatite, but also its chemical reaction. The larger crystals are not pure, but show numerous small cavities, though without bubbles.

The chemical composition of the quartz-dioryte No. 14, is as follows:

SiO_2	56.59
Al_2O_3	12.41
Fe_2O_3	5.39
FeO	10.28
CaO	6.70
MgO	2.02
K_2O	1.02

Na_2O	4.27
H_2O	1.45
CO_2	trace.
	100.13
P_2O_5	0.44
TiO_2	0.22

The following conclusions result from this analysis:

The low percentage of potash points to a small per cent. of orthoclase (at most 6.03), if all the potash is not embraced in with the triclinic feldspar. The comparatively high percentage of soda, and the small amount of lime, which latter belongs in part to the hornblende, the epidote and apatite, point conclusively to the presence of a feldspar rich in soda and poor in lime, which therefore will come near to andesite or oligoclase. Although the hornblende is present in notable amount, yet there is only a low percentage of magnesia. It must therefore be poor in this respect. But, also, it cannot contain much lime, which is claimed partly by the other minerals. Consequently it must be very rich in iron-oxide, and perhaps contains also some soda. Very remarkable is the low percentage of silica, notwithstanding the presence of a notable amount of quartz. This can only be accounted for in that the hornblende is poor in silica, and that through the presence of titanic iron the percentage of silica of the whole rock is reduced. The apatite amounts to 1.07 of the rock. Without regard to the appearance of the individual minerals, the water present amounting to 1.45, shows that the rock is no longer entirely fresh.

The foregoing examination teaches that the quartz-dioryte No. 14, from Sauk Center, consists of a mingling of plagioclase (andesite or oligoclase), hornblende (apparantly sometimes with an augitic center), and quartz, in medium-sized grains, with which are found, in subordinate amounts, orthoclase (doubtfully), epidote, titanic-iron, apatite, and a very little pyrite.

15. *Quartz-dioryte from Little Falls.* This rock consists, macroscopically, of a coarse-grained mixture of the following minerals.

(1) Black hornblende. The crystals are frequently perfectly formed, so that notably the planes ∞P and $\infty \breve{P} \infty$ are nearly everywhere plainly visible, according as one or the other is displayed tabularly, while the terminal planes are wanting. They are fibrous, and therefore but slightly lustrous, or merely shimmering. Before the blow-pipe the hornblende fuses, after a slight intumescence, to a black glass.

(2) A dense fine-grained gray mass, apparently consisting of an impure, dense, or rather fine grained crystalline feldspar, which only fills the interstices between the hornblende crystals.

(3) Quite frequently are seen scattered, well formed rhombic dodecahedrons of brownish-red garnet.

The pulverized rock contains no trace of a magnetic substance. In the slime appear no heavy, black, metallic grains, but only light flakes of biotite.

With the microscope, the following can be discerned :

(1) The hornblende crystals are very sharp, and wholly bounded by right lines. They are sometimes of a greenish-brown color, and then they are strongly dichroic; or they are green, and appear flecked, apparently impregnated with viridite, and then they are less dichroic, but yet more strongly than the augite. A difference between the inside and the outer border cannot be discovered. This hornblende is now possessed of numerous inclusions, among which appear, particularly, colorless angular kernels of quartz, as well as of feldspar. Hence, the mineral appears, especially between crossed Nicols, like a sieve, in which the hornblende looks very black, but the abundant included grains shine out in variegated colors. The hornblende is cut sometimes by parallel cleavage running lengthwise, and sometimes by very fine irregular fissures.

(2) Between these regularly developed crystals of hornblende is a fine-grained aggregate of quartz, feldspar, and of little black angular grains, that are sometimes also brown. The quartz grains are small, very clear, and with very few cavities. The feldspar makes little irregularly angular kernels which cannot be distinguished, as to whether monoclinic or triclinic. What the abundant opaque black specks consist of could not be determined more exactly. The translucent brown grains, or blades, certainly were biotite. Very slender, minute needles of apatite were very sparingly visible.

(3) Regularly six-sided, or quadratic, bright red crystals of garnet. It is penetrated by irregular fissures, and embraces irregularly-shaped gray grains, and also cavities of the same form.

(4) There are also a very few scattered black metallic secretions, perhaps some of titanic iron, the forms of which are very various.

The following shows the chemical composition of the quartz-dioryte No. 15, from Little Falls :

SiO_2	66.88
Al_2O_3	11.69

Fe_2O_3	1.68
FeO	8.94
CaO	5.45
MgO	3.55
K_2O	0.20
Na_2O	1.25
H_2O	1.03
CO_2	trace.
P_2O_5	trace.
	100.67

Very remarkable is the high per cent. of silica in this rock, which in connection with the low per cent. of alumina, shows that it is poor in feldspars and rich in quartz. That the feldspars are plagioclase is evident from the very low percentage of potash. As the rock contains very little magnesia and lime, but still much hornblende, this latter must be very rich in iron; perhaps it contains also, further, alumina and soda.

The quartz-dioryte No. 15, from Little Falls, consists, therefore, of a mixture of large hornblende-crystals, between which is embraced a fine-grained aggregate of quartz, plagioclase, black grains and biotite. In it are found a few perfectly formed crystals of garnet, alongside of which the hornblende outlines fall away, and more rarely a very little apatite. Everywhere this rock appears in such relations as leave it doubtful whether it can be considered as an independent rock-formation.

V. AUGITE-QUARTZ-DIORYTE.

16. *Augite-quartz-dioryte* (*a*) *from Watab.*

Macroscopically this rock appears as a medium-grained mass made up of: —

(1) Triclinic feldspar of bright luster and very distinct striation; (2) orthoclase, very fresh, and sometimes faintly red; (3) irregular gray quartz grains; (4) scattered black scales of biotite; (5) greenish-black hornblende, not very bright, but in about equal abundance with the feldspar. Upon closer examination of the hornblende grains they can be seen frequently to contain a center of a diffierent nature. This is of a green color, shows no luster at all, though having a shimmering surface passing to dull, and possesses a more distinct cleavage, which forms an angle of

about 153 degrees with the cleavage of the surrounding hornblende. The cleavage of the center therefore truncates the broad columnar edge of the hornblende; and hence here also the center consists of diallage.

Under the microscope can be seen, in the quartz, which is very abundant, along with the needles of apatite and crystallites, little fluid inclusions with and without bubbles, which often are in very lively movement. The orthoclase is rather impure by reason of many gray included grains; the same is true of the plagioclase the striation of which often appears particularly distinct by reason of lines of black specks. The biotite is in brown-translucent or opaque scales. Magnetite, or titanic iron, is rare. The hornblende constitutes light to dark brown crystals, that are cut by parallel cleavage but with imperfect outlines. Larger hornblende forms possess a center of augitic mineral, that is diallage. This is colored light yellowish-green, but becomes impure by reason of fine brown or opaque granular flecks, or even by brown-translucent scales of biotite or green grains of viridite. sometimes, distributed among these, can be seen little reddish scales with a faint metallic luster. It is wholly non-dichroic, sometimes is pierced by entirely systemless fissures, or is again very fibrous so that in its larger masses it looks like an assemblage of lighter and darker parallel fibers. Occasionally this mineral becomes dark green along the edge, and then passes into hornblende which everywhere encloses it. The surrounding hornblende sometines looks like an individual srystal, and makes hence no distinct line of separation from the diallage. Since this line appears distinct only in polarized light, it is then plainly seen to run out and in irregularly. Apatite appears in all parts, in slender and also in thick crystals.

Chemical composition of the augite-quartz-dioryte (*a*) No. 16, from Watab.

SiO_2	65.27
Al_2O_3	15.76
Fe_2O_3	1.36
FeO	3.44
CaO	3.70
MgO	2.14
K_2O	3.97
Na_2O	4.57
H_2O	0.42
	100.63
P_2O_5	0.26

From this it follows that the rock is still very fresh, inasmuch as it holds but little water, and no carbonic acid; further, that it must be placed with the acid rocks, that is to say, it accords in its composition with typical syenites, and especially in this respect comes near to the syenite-granite from Watab. The high percentage of silica is produced partly by its richness in orthoclase, and partly by its free quartz. The high content of soda of this rock, in connection with the low per cent. of potash, shows that the plagioclase will have to be one rich in soda and poor in lime, especially as a part of the lime is absorbed in the hornblende and the augite. But both these minerals can be present in comparatively small amounts, on account of the small per cent. not only of lime, but also of magnesia. The percentage of apatite reaches 0.59.

Notwithstanding this rock in its chemical composition is comparable with the syenite-granite from Sauk Rapids, yet its mineral composition shows a distinction from it. In the first place, it is the plainly visible presence of an amount of diallage in which the foregoing rock differs from syenite-granite. Further, its content of soda is greater than its potash, and the triclinic feldspar is paramount over the monoclinic. On the other hand, this rock differs from the augite-diorytes conspicuously in its content of free quartz, and from the quartz-diorytes by its containing orthoclase and diallage. It must, therefore, be separated from the above-named classes, as augite-quartz-dioryte. It could with equal reason be designated augite-quartz-syenite, so as to bring out its affinity to the syenites. But since a hornblendic rock with abundant plagioclase and a small amount of othoclase, is recognized as dioryte, and one with much orthoclase and little plagioclase, as syenite, it will be appropriate to designate the foregoing rock as an augite-quartz-dioryte.

The augite-quartz-dioryte (a) No. 16, from Watab, therefore, consists of a medium-grained assemblage of the following: plagioclase (oligoclase) orthoclase, quartz, hornblende, often furnished with a central nucleus of diallage, a little biotite, and a very little apatite, and magnetite or titanic iron.

17. *Augite-quartz-dioryte* (*b*) *from Watab.* This rock presents a somewhat different aspect from the last.

Macroscopically it seems to be a coarsed-grained collection of the following minerals: (1) red orthoclase; (2) white or reddish plagioclase, which is in greater amount than the last; (3) gray quartz in very irregularly shaped masses; (4) black hornblende which is present in large quantity. The crystals of this are generally fibrous and sometimes wholly filled with biotite. In it also are seen here and there little metallic grains in considerable amount. The crystals of the hornblende are rather strongly lustrous, but very frequently contain, within a lustrous border, a dull greenish-brown center with a cleavage that lies as the orthopinacoid of the hornblende, in which case it is possible to measure the angle which the prism-faces of the hornblende make with the cleavage of the central grain, amounting to 150–153 degrees. This center here also plainly consists of an augitic mineral with a very conspicuous cleavage, namely diallage. The fifth (5) ingredient is therefore diallage. (6) Biotite; this is found in scattered brown scales or in slightly lustrous aggregations, the latter when it encroaches on the hornblende: (7) Metallic grains, which appear sometimes in octahedrons, are magnetite; (8) Occasionally, even under the lens, long needles of apatite are distinguishable, both in the feldspar and in the hornblende.

By a microscopic examination the quartz is shown to be present in large amount. It contains many fluid inclusions, very often with movable bubbles. The feldspars are completely overstrewn and filled with grayish-white grains, so that they are often hardly transparent. As, therefore, the striation is obscured, it is impossible to determine whether orthoclase or plagioclase predominates. On the other hand, the twinning-striation frequently is indicated with the greatest distinctness; inasmuch as the included impurities, which consist either of fine grains, or of long, slender, slightly colored blades, that cut each other alternately like wedges, run in parallel lines, and by the regularity of this parallel arrangement give perfect expression to the twinning-striation. The hornblende crystals are greenish-brown or brown, and strongly dichroic, cut by parallel cleavage, and of irregular outlines. Sometimes they are penetrated by green viridite. The augitic mineral is generally in light-brown or dark-green crystals, but little dichroic, often very fibrous, and nearly always surrounded by hornblende. Between crossed Nicols, the fibrous structure becomes especially distinct as an irregular color-striation. This diallage is also often filled with viridite; and, further, it contains grayish-looking granular groups of elongated form and parallel structure, as well as dark-brown elongated entirely rod-like crystals, which likewise lie parallel. The hornblende border is sometimes very thin, and sometimes so wide that the diallage-nucleus occupies but a very small space. Sometimes this border is very regular, in so far as it pertains to a single individual. Often no distinct separation between the two minerals can be seen; it only appears in polarized light. Magnetite (or titanic iron) is in scattered grains or in irregular clusters, generally in connection with the hornblende. Biotite forms dark-green to brown, translucent or opaque plates. Apatite is evident in numerous large needles; and, finally, epidote and pyrite are very rarely seen.

The augite-dioryte (b) from Watab, No. 17, forms, therefore, a coarse-grained collection of plagioclase, orthoclase, quartz, hornblende, diallage; and connected with this, *biotite, magnetite (or titanic iron) and apatite, and very rarely epidote and pyrite.*

VI. SYENITE-GRANITE (HORNBLENDE-GRANITE).

This rock occurs at Sauk Rapids, St. Cloud, Watab, and Rockville on the Sauk river.

18. *Syenite-granite (a) from Sauk Rapids.* This rock consists, macroscopically, of a medium to coarse-grained collection of, (1) red and sometimes nearly colorless orthoclase, in which the cleavage surfaces are rather bright; (2) white, brightly-shining, triclinic feldspar; both these feldspars are very abundant; (3) quartz in the form of frequent gray grains; (4) scattered scales or clusters of brownish-black biotite; not frequent; (5) common hornblende, of a black color, in separate crystals, of irregular outlines, or in groups, often mixed with biotite. This hornblende, besides, plays only a subordinate role.

Microscopically one observes:—

(1) Orthoclase. This is very impure, often completely filled with very fine powder which consists of irregular brown and gray grains, but is not uniformly disseminated.

(2) Plagioclase. This is very often crossed by right lines of a black granular substance parallel to the twinning striation. This feldspar, besides, is everywhere filled with brown and gray grains.

(3) Quartz is present in large amount, in smaller and larger masses, sometimes only filling the interstices between the feldspar grains, and sometimes in apparently independent forms. It contains many fluid inclusions, with movable bubbles, more rarely long needles or short thick crystals of apatite, black specks, brown or greenish scales, and larger colorless crystallites with quadratic or rectangular cross-section.

(4) Dark brown to greenish-brown very dichroic hornblende, not very abundant. Sometimes this is completely opaque, and then appears black but with no metallic luster, and therefore filled with an opaque non-metallic substance.

(5) The plates of biotite are very seldom seen. They are mostly confined to the vicinity of the hornblende, and are concealed by the opaque masses.

(6) Magnetite in scattered grains (apparently octahedrons) is not abundant, and also adheres mostly to the hornblende.

(7) Apatite occures in nearly all the minerals in the form of long and short, thick and slender, crystals, which often show the planes oP, ∞P and P; also hexagonal cross sections are visible; these crystals are always very pure.

(8) Small, greenish-brown, pyramidal crystals, which were not more exactly determinable, come very rarely into view.

The chemical composition of the syenite-granite (*a*) from Sauk Rapids, No. 18, is as follows: —

SiO_2	67.70
Al_2O_3	16.11
Fe_2O_3	2.47
FeO	2.29
CaO	2.89
MgO	1.11
K_2O	4.47
Na_2O	3.64
H_2O	0.83
CO_2	trace
	101.44
P_2O_5	0.13

The high percentage of silica answers to the presence of a large amount of free quartz as well as of orthoclase (26.43 p. c.) which is indicated by the 4.47 of potash. Further, again, the tolerably high content of soda which is referable to an amount of triclinic albite, presupposes an equally high content of silica. This triclinic feldspar will come much nearer albite than anorthite, because in comparison with 3.64 p. c. of soda only 2.89 p. c. of lime is found in the whole rock, and a small part of this lime is needed for the hornblende. It would be entirely right therefore to consider the plagioclase as oligoclase. How little the hornblende is, is evident from the small percentage of magnesia and iron oxides, while the latter besides, take part in the forming of the magnetite. Apatite amounts to 0.32.

The syenite-granite (a) from Sauk Rapids, No. 18, consists therefore of a medium to coarse-grained collection of orthoclase, oligoclase and quartz; with which are added, in subordinate amounts, *hornblende, biotite, magnetite, apatite, and, very sparingly, scattered grains which are small pyramidal crystals of a greenish-brown color, not determinable.*

19. *Syenite-granite* (*b*) *from Sauk Rapids* is a rock of somewhat different appearance, coming from the same quarry. Macroscopically this rock differs from No. 18, only in the greater amount of change suffered by the larger masses of hornblende. These are tolerably soft, and have a light greenish-gray streak. Microscopically, the quartz is noticeable for the great numbers of fluid-inclusions with movable bubbles. At one spot could be seen a bright four-angled grain alongside of a movable bubble, which was tossed about by the bubble. It probably is chloride of sodium. The hornblende is converted partly into a green, viriditic mass, but is sometimes unchanged. In the midst of the dichroic brown hornblende is occasionally seen a nucleus not dichroic, greenish in color and filled with granular substance, which perhaps may be referred to some augitic mineral. A similar appearance is repeated in the same rock from another place.

20. *Syenite-granite from St. Cloud* consists macroscopically of a medium-grained mixture of orthoclase, plagioclase and quartz, as predominating ingredients, among which are seen scattered crystals of brownish-black hornblende in somewhat greater proportions than in the rocks from Sauk Rapids. In addition to these there are also little scales of biotite and occasionally a little pyrite. The larger hornblendes, which afford the identification of the six-sided outline of this mineral ($\infty P \ . \ \infty\underset{\smile}{P}\infty$) and the angle of 125 degrees which the columnar sides make with each other, contain a center consisting of a green chloritic mass surrounded by a thin band of biotite. Between them still is seen hornblendic substance.

The microscopic conditions are like those of Nos. 18 and 19, though here were a few scattered hornblendes in which was a non-dichroic center which perhaps is derived from an augitic mineral.

21. *Syenite granite between Sauk Rapids and St. Cloud.* This is also very similar to the above named; it contains, as can be seen by the unaided eye, in the greenish-black hornblende, a much decayed mineral of a yellowish-green to brown color, which can be recognized as augite. Very rarely a black mineral whose hardness is 6, can be seen, whose fracture is conchoidal and exhibits a strongly waxy or glassy luster, and which perhaps should be considered allanite or orthite.

22. *Porphyritic syenite-granite from Watab.* This rock has a

medium to a fine grained groundmass, with rather large crystals of red orthoclase which are surrounded sometimes by a band of plagioclase, The granular groundmass consists of quartz, red orthoclase and plagioclase, and greenish-black hornblende in subordinate amount.

Under the microscope the quartz contains numerous very fine fluid cavities, with and without bubbles, more rarely apatite, and green grains of hornblende. The orthoclase is for the most part, but especially in the large crystals, completely filled with brown or gray granular masses, and also embraces kernels and scales of hornblende. Plagioclase is but scatteringly seen. It is also very impure, filled with granular substance. The hornblende exhibits irregular outlines, has a brown or green color, is dichroic, fibrous, and appears mostly in small secretions, indeed principally in grains and scales in the quartz and feldspar. Black opaque grains are probably magnetite or titanic iron. Apatite is in slender needles in all portions.

The following is the chemical composition of the porphyritic syenite-granite from Watab, No. 22 :

SiO_2	70.05
Al_2O_3	15.04
Fe_2O_3	1.70
FeO	1.09
CaO	1.97
MgO	0.82
K_2O	5.09
Na_2O	4.77
H_2O	0.81
	101.34
P_2O_5	0.07

From which it appears that this rock belongs to the most acidic of this class, and that it is therefore rich in quartz. The orthoclase, reckoned from the content of potash, reaches 30.1 per cent. But the plagioclase is also found plentiful, as seems from the amount of soda present. As, furthermore, the rock contains but little lime this must come nearer albite than anorthite, and hence it is nearest to oligoclase. The low percentage of magnesia and iron-oxides is in accordance with the very small amount of hornblende.

All these rocks, therefore, having the composition of syenite-granite, consist of quartz, orthoclase, oligoclase, with a little hornblende, bio-

tite, apatite, and some magnetite or titanic iron. In the hornblende is sometimes a central mass which might be taken for augite. Sometimes these rocks are porphyritic.

These rocks are placed as syenite-granite or hornblendic-granite, and not syenite, for the reason that hornblende in them is very sparse, while the ingredients of granite are very abundant.

From this examination of the hornblende-bearing rocks of Minnesota it appears, as a common and important result, that there a whole class of basic and acid rocks is found, which, along with hornblende as an essential ingredient, contain also an augitic mineral, which, while subsisting, it is true, sometimes as an independent ingredient, is for the most part intimately connected with hornblende, indeed is entirely conformable to it in its mineralogical developement. This augitic mineral is present not only in the basic rocks, but also in the acidic which contain orthoclase and quartz; in the most acidic, it is true, it is only indicated, its presence here not being proved with certainty. This augitic mineral is found to consist everywhere of diallage, in which the most evident cleavage plane truncates the obtuse columnar edge of the hornblende that envelopes it. The association of these two minerals is one so irregular, the hornblende encroaches in so thin partings into the augitic substance, that one cannot resist the idea that here the hornblende is derived from the augite. The final proof of this view, however, will be produced when it has been pointed out that the outer envelop of the whole crystal takes upon itself the form of augite. Should this proof be attained, then it will be necessary to conclude that other hornblendes which no longer have an augitic center, have resulted from augite, and that in them the change has become completed — that is to say that the rocks under consideration were once still richer in augitic mineral than they now appear.

These rocks with diallage belong consequently to a group of the old rocks recently made known for the first time, in which augite and hornblende exist at the same time. Without mentioning the gabbro-rocks, in which the co-existence of these two minerals has been known for a long time, here belong the syenites from Scharfenstein described by Kalkowsky[1], also the augite-syenite from Monzoni which according to G. von Rath[2] has the hornblende as an accessory ingredient, but according to Doelter[3] in greater quantity than the augite. Von Rath[4] has stated also that at Laurvig a rock appears similar to augite-syenite, and the same investigator reports[5] that at LePrese the dioryte changes into gabbro by acquiring diallage. Here therefore the changed rock would correspond to augite-dioryte. The co-existence of augite and hornblende in the older rocks was also noted by Kürenz[6] in a dioryte at Trier, by Schmid[7] in a labradorite-dioryte from Ehrenberg, by Wiik in a dioryte-porphyry from Nokkala in Finnland, and in a dioryte-diabase[9] from Helsingfors; by Mattesdorf[10] in a monzonyte from the Agnelloberg; by Gümbel[11] in a rock of the Fichtelgebirg, by Tschermak[12] in a diabase from the Caucasus and in the melaphyrs[13] of the Fassathal[14].

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[1] Jahrb. 1876, p. 140. [2] Zeitschr, d.d. geol. Ges. XXVIII. p. 85.

VII. HORNBLENDE-LESS GRANITE.

This rock occurs at Watab, and at Coldspring, above Rockville, on the Sauk river.

The granite from Watab, which forms low hills at the entrance to the place, consists of a medium grained collection of quartz, grayish-white orthoclase which for the most part is in large crystals, grayish-white plagioclase and numerous scales of biotite.

The granite from Coldspring is porphyritic. Here lie coarse crystals of reddish orthoclase, white plagioclase and coarse grains of gray quartz, in a medium to fine grained groundmass which consists of quartz, much orthoclase, a little plagioclase and some biotite.

GIESSEN and HANNOVER, August, 1876.

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[3] Jahrb. d. k. k. geol. Reichs-Anstalt, 1875, XXV. p. 217. Verh. d. k. k. geol. Reichs-Anstalt, 1875, No 14, p. 247; No, 15, p. 289; No. 16, p. 304.

[4] Zeitschr d. d g Ges. p. 353. [5] Pog. Ann. 114, p. 248, Anmerk.

[6] This Jahrb. 1876, p. 176 [7] Der Ehrenberg. p. 19.

[8] This Jahrb. 1876, p. 209. [9] This Jahrbuch, 1876, p. 208.

[10] Verh. d k. k. geol. R-A., 1876, No. 2, p. 33, [11] Dieses Jahrb. 1876, p. 436.

[12] Min. Mitth. 1876, p. 182.

[13] Porphyr-Gestine Œsterreichs, p. 124. See also Dœtler in Min. Mitth. 1875. p. 179, and Jahrb d. k k. g. R-A. 1875, p. 224.

[14] During the correction of the proofsheets I received a very interesting work from Rosenbusch, in which the evidence is given that in the variety of granite described by him as granityte, augite is not very rare, and sometimes is associated with hornblende to a remarkable extent in the granite-porphyries. Z. d. d. g. G. 1876, p. 369.

III.

NOTES OF ROCK-OUTCROPS IN CENTRAL MINNESOTA.

BY WARREN UPHAM.

The following pages record observations of the localities, extent, and most noticeable lithological characters of the crystalline rocks in the central part of the state, mostly in Morrison, Stearns and Benton counties; and of their few outcrops farther northwest in Todd county and the southwest corner of Cass county, and on the east in the northwest corner of Sherburne county and in Mille Lacs and Kanabec counties; with a description, also, of the sandstones and the copper-bearing trappean rocks, which lie next eastward in Kanabec, Pine and Chisago counties. This district is almost entirely drift-covered and heavily timbered. A map of it, showing the rock-outcrops here described, is presented on plate I. The detailed descriptions of the several counties are given in the following order: Cass, Todd, Morrison, Stearns, Sherburne, Benton, Mille Lacs, Kanabec, Pine and Chisago.

A large area in Stearns, Sherburne and Benton counties, including the valuable quarries of Saint Cloud, Haven, Sauk Rapids and Watab, consists of syenite and exhibits no laminated or gneissic structure. It has considerable variety in texture, as to its coarseness of grain and readiness to be quarried and wrought to any required form. Mostly its color is light gray, but upon some extensive tracts it has a red tint, similar to that of the celebrated granite of Aberdeen in Scotland. In other portions of this district, granite, gneiss and mica schist are the common rocks, sometimes associated with syenite. Their strike is usually to the northeast or east-northeast.

At Little Falls and Pike rapids, and for several miles to the south, west and north, as also at the mouth of Fish Trap brook in northern Todd county, is a group of rocks quite different from the foregoing, its range of variation being from a highly cleavable clay slate, and from a mica schist enclosing many crystals of staurolite and sometimes garnets and iron pyrites, to a very compact and tough, massive dioryte.

CASS COUNTY.

The only rock-outcrops known in Cass county are at Pokegama falls on the Mississippi river, described on page 195 of the ninth annual report; and those of T. 134, R. 32, the most southwest township of this county, about eighty miles southwest from Pokegama falls, and five miles northwest from Motley. The latter were first described by Professor Winchell on page 46 of the sixth annual report. The area of frequently outcropping rock at this locality reaches about a half-mile from south to north, and has a width of twenty to forty rods. It is mostly in the E.½ of the N.E.¼ of section 28, and extends north into the southeast part of the S. E. ¼ of section 21, and perhaps also beyond the lines of these into the adjoining sections 22 and 27 on the east. These outcrops in their southern part have a hight one to three feet, and in their middle and northern part five to eight feet, above the general surface of moderately undulating drift, being 20 to 40 feet above the Crow Wing river, which lies about three-fourths of a mile to the southwest. The only considerable elevation in this vicinity is a hill of glacial drift, extending a quarter of a mile from north to south, situated a short distance east of these ledges, in the west edge of the N. W. ¼ of section 27. This rises 40 to 50 feet above the rock exposures, and about 75 feet above the extensive marsh at its east side. Mainly the surface of this hill, as of the surrounding region, is sand and fine gravel, but boulders of granite up to five feet in diameter are found sparingly at its top and on its sides.

The greater part of the rock exposed here is gray syenite, rather fine-grained, containing both white and flesh-colored feldspar, and a greenish mineral, which last is sometimes most abundant in streaks or veins, up to two inches in width. Rarely two or three of these veins are seen within a foot, giving the rock a somewhat schistose structure. In the middle part of this area some of its ledges are granite, having principally a white feldspar, and including evident lumps of mica and also the green mineral of the syenite.

Two wide dikes of dark, tough, massive, trappean rock were noted. One of these, near the south end of this area, is visible for an extent of twelve or fifteen rods being fifty to sixty feet wide. The line of contact with the syenite on the northeast side of this dike is very distinct and sharply defined along its exposure two or three rods in extent, bearing S. 50° E. At the second dike, near the north end of these exposures, both lines of contact with the enclosing syenite are visible at many places along a distance of fully two hundred feet, bearing S. 70° E., which is the course of a conspicuous system of joints in the syenite. The width of this dike is thirty feet. From its northern side a branch of irregular course and varying from two feet to three inches in width reaches forty feet northerly, as shown in fig. 2, plate I. At one point seven or eight feet from the main dike, an offshoot from this branch is seen extending several feet with a width from one inch to only an eighth of an inch. The aspect of this dark eruptive rock is nearly the same in all portions; its line of contact, wherever exposed, is very sharply defined; and the syenite adjoining shows no notable difference from that at a greater distance. Some portions of the syenite and granite here may be found valuable for quarrying, which, though several times contemplated, has not yet been undertaken.

TODD COUNTY.

Only two localities of rock in place are known in this county. These are in the townships of Moran and Ward.

Moran. In the channel of the Long Prairie river at the mouth of Fish Trap brook and for a third of a mile along this brook next above its mouth, being in the west part of section 34, T. 133, R. 32, five miles southwest from Motley, are extensive outcrops of dark and tough, nearly black dioryte, resembling that found at "the point," about a half mile south of Little Falls. It is a very compact, coarsely crystalline rock, with no lamination or apparent tendency to split more readily in one direction than another. Some of the large blocks of this stone, lying in the bed of the Fish Trap brook near E. P. Jones' mill, which is an eighth of a mile above its mouth, ring sonorously like an iron kettle when struck by a hammer. This rock forms ledges one to four rods long, rising one to five feet above the water, in the channel of Long Prairie river and in both its banks at the mouth of this tributary, and at a few places for six or eight rods distance both above and below. Its outcrops along Fish Trap brook are seen at many places to Jones' mill, but above this for about a quarter of a mile are mostly covered by the mill-pond. Farther above, it has no exposure along this brook, which flows over glacial drift with many boulders and frequent rapids. In the vicinity of the mill its ledges occupy a width from two to four rods, and rise about twenty feet above the brook. It is mostly divided by joints from two to ten feet apart; but when Mr. Jones built his dam, he reports that he uncovered an extent of thirty feet of it without a seam. This rock is wholly worthless for quarrying because of its toughness to drill, and more especially because of the difficulty to bring it into any desired dimension. It is very hard to fracture and is evidently very durable.

Frequent outcrops of this rock, of small extent and hight, are reported within the next two miles eastward, in sections 34 and 35 and in the S. E. ¼ of section 36, also probably reaching across the township line, into the edge of the sections next south. Mr. Jones, who has explored this district, thinks that the only exception from the character of the rock as described, is a small belt seen at the the east side of Fish Trap brook, extending from the lumbermen's dam at its mouth a distance of about ten rods along the east shore of the pond. Here a nearly black slate is exposed, having its cleavage vertical or differing from this within a limit of five degrees upon each side. Its strike is N. 55° W., being parallel with the brook. The width of this slate visible is only from five to fifteen feet, and its contact with the neighboring dioryte is not seen.

Ward. The other rock-outcrop in Todd county is ten and a half miles farther southwest, lying nearly at the center of the N. E. ¼ of section 15, T. 131, R. 33, the west township of Ward. It is on land of Joseph Woell, a third of a mile west of Long Prairie river, and an eighth of a mile east of the road from Motley to Long Prairie, which here runs on the west edge of the valley-plain of modified drift. The extent of this ledge is some twenty rods from northwest to southeast, with a width of three or four rods, including several exposures, the longest of which reaches about a hundred feet. Their hight is from four to eight feet above the plain, which is about fifteen feet above the river. This rock, mostly quite uniform in composition, color, and texture throughout this area, is a bright-colored, medium-grained, gray syenite; containing about equal amounts of quartz, whitish feldspar, and dark, nearly black, hornblende; with a somewhat smaller proportion of a light-green mineral (probably epidote), in rather smaller grains than the foregoing. This seems to be the same mineral with that mentioned in the rock of Cass county, five miles northwest of Motley, and it is present as a principal ingredient of the rock in Ashley, Stearns county; but it has not been noted in other outcrops of these crystalline rocks. The whole ledge here has this mineral in nearly equal amount, the only exceptions being very rare concretions, one to two inches long and thin, composed of a dark-greenish micaceous mineral, and very rare seams or veins, a sixteenth to an eighth of an inch wide and a few feet long, composed of the light-green mineral which is generally disseminated through this rock. The only other vein or variety noted was a mass of coarsely crystalline, flesh-colored feldspar, exposed upon a patch of only about one foot, but probably forming part of a long vein, adjoining which the rock was more jointed and coarse-grained than ordinary. This ledge is generally intersected by nearly vertical joints, from two or three to eight feet apart. It has never been quarried, but will probably be found valuable for common masonry; and dimension stone, six to eight feet long, could be readily obtained. Though nowhere obviously schistose, the grains of this rock are all slightly prolonged in parallelism with each other.

MORRISON COUNTY.

This large and diversified county has many outcrops of the bedrocks. Their prevailing types through the part of the county east of the Mississippi are granite, syenite, and gneiss. Along this river and farther west they are slate, staurolite-bearing mica schist, and dioryte. The former belong to a group which has its characteristic development in the syenites of Benton and Stearns counties, and in the granites and gneisses of the upper Minnesota valley. Though the geographical continuation of the second group of slate and associated rocks cannot be traced because of overlying drift, their lithological character shows them to be probably connected and of the same age with the slates of the lower part of the St. Louis river and its vicinity. The hydromica schists found in Carlton county near Moose Lake station may also belong to this second group.

It seems probable that the slate, staurolitic schist and dioryte of Morrison county, and of northern Todd county at and east from the mouth of Fish Trap brook, form a synclinal axis or basin bounded both east and west by formations of granite, syenite and gneiss.

In describing the ledges observed in Morrison county, these groups are treated of separately, the eastern, mostly granitic and gneissic rocks, which are believed to be the older, being first considered.

Buckman. This is T. 39, R. 30. Its only rock-outcrop, so far as learned of, is on land of A. B. Skinner, in the S. W. ¼ of the N. W. ¼ of section 18, a short distance east of the road which runs on the west line of the township, and north of a small creek. It is a coarse-grained, reddish syenite, nearly like that which occurs at many places in Sauk Rapids and Watab, Benton county. Several exposures of the rock are seen upon a space of about one acre, the largest being four rods long from north to south, and rising three or four feet above the general surface. Many blocks, four to fifteen feet in diameter, are scattered near.

Rich Prairie and vicinity. Proceeding northward toward the village of Rich Prairie, in Pierz township, the next exposure of rock is found about one and a fourth miles south of this village. It is at the east side of Skunk river, in the S. W. ¼ of section 17, on land of John Stumpf. Its area is equal to about forty feet square, and its hight is ten feet above the river. This rock is a gray granite, containing considerable black mica.

One and a half miles west from the last, and about a third of a mile south of Fish lake, upon the S. E. ¼ of section 13, T. 40, R. 31, is an outcrop of rock extending about fifteen rods from east to west and twelve rods from north to south, rising four or five feet above the general surface. Its eastern part is owned by Nicholas Meyer, and its west part by Anton Rauch. This is a fine-grained, light gray granite, very uniform in texture, with no veins or masses of other rock visible. It is divided by joints into beds one to two feet thick, dipping about 20° S., but it is not cut by vertical joints. It has been only slightly quarried, by Mr. Meyer for cellar walls. This stone has a pleasing color for building and monumental work, and a good degree of strength and durability. It is readily quarried in any dimensions that are ordinarily called for, and is easily cut or hammered. The ledge is valuable for quarrying, and a large excavation may be made without trouble from water, as the surrounding land is the porous sand and gravel of the modified drift; which also affords a nearly level and dry road for hauling the stone away.

About three miles southeast from Rich Prairie, exposures of the bed rock, probably granite, are reported to cover three or four acres, on land of Matthias Neuman, in the S. ½ of the N. E. ¼ of section 22. It has been slightly quarried.

One mile east of Rich Prairie or Pierz, the east bank of Skunk river between forty and eighty rods north of the mouth of Hillman brook, has frequent outcrops of gneiss, rising one to three feet above the general surface and ten to twenty feet above the stream, next to which they occupy a belt about six rods wide. This gneiss contains black mica and flesh-colored feldspar, the latter being sometimes gathered in layers or veins one to three inches wide. All these outcrops are more or less laminated, this structure being nearly vertical. They are all somewhat contorted and jointed. The strike is N. E. or N. 50° E., bearing in the direction of "Granite City," four miles distant, where similar gneiss has extensive exposures.

Along Hillman brook. In ascending this brook, my first observation of rock in place was at its lowest "roll dam," situated about three and a half miles above its mouth, in the north part of the N. W. ¼ of section 18, T. 40, R. 29. This outcrop is at the north end of the dam, and occupies an area about four rods long from north to south, by twenty to forty feet wide. Its southeastern two-thirds are gneiss, nearly like that last described, rather obscurely and contortedly foliated but indicating a N. E. to S. W. strike. This gneiss has much black mica and flesh-colored feldspar, and it is traversed by veins of this feldspar from an eighth of an inch to six inches wide. One of these veins, varying from three to six inches in width, nearly vertical, is visible for an extent of twenty feet in a straight east-to-west course. The joints of the gneiss are from two to ten feet apart.

The northwestern third of this ledge, extending within sight twenty feet from north to south and ten feet wide, is a fine-grained granite, containing much feldspar, which is partly gray and partly flesh-colored. This portion of the ledge is probably part of a dike or mass of erupted rock; it is rhomboidally divided by intersecting systems of joints, which are from two to twelve inches apart.

Ledges occur frequently in the vicinity of the second and third "roll dams," situated respectively about forty rods below and twenty rods above the mouth of the Little Hillman brook, tributary to the main stream from the south. About a mile above the mouth of the Little Hillman brook and a short distance, perhaps a quarter of a mile, above its dam, this stream is reported to flow some twenty rods in a gorge with walls of rock at each side, five to twenty feet high. Also, frequent outcrops of rock are found between these streams from their junction east and northeast to the "big dam" of Hillman brook.

This "big dam" is on the S. E. ¼ of section 35, T. 41, R. 29, about sixty rods west of its east line, and twenty rods south of its north line. Rock-outcrops of considerable extent occur at several places upon each side of the Hillman brook for a fourth or a third of a mile below and along an equal distance above the "big dam." These are gneiss and granite with the same characters as at "Granite City" and in the vicinity of Rich Prairie. Farther east the region drained by this brook and its tributaries has no known exposures of rock.

At the south end of this dam, about 400 feet south of the sluiceways, the gneiss is typical, including much black mica. Its coarse foliation is nearly vertical, with strike varying from N. 25°E. to N. 40° E. At the north end of the dam, 100 feet north of its sluices, the rock is a fine-grained gray granite, with black mica, nearly like that on land of M--yer and Rauch, south of Fish lake and a few miles southwest of Rich Prairie. This granite is here exposed upon an area which extends at least twenty rods east and ten rods west from the dam, and is from three to six rods wide. Mostly it is divided into rhomboidal masses from a few inches to four or five feet in dimension by joints, and no portion seen was sufficiently free from joints to yield large quarried blocks; yet it is quite likely that good quarry-stone would be obtained by excavating a few feet in depth. The texture and rift are nearly the same as south of Fish lake, to which this formation is probably continuous; the rock is equally compact and uniform in quality; and the color, though on the surface here weathered to a dull brownish tint, would probably be the same handsome gray as at Fish lake in deep quarrying.

"*Granite City.*" In the west part of section 21, T. 41, R. 29, on the northwest side of Skunk river, is the site where a steam saw-mill and a considerable town existed during several years next preceding the Indian outbreak of 1862. Its buildings remained empty from that time and were gradually removed or burned, the last continuing till 1873. The nearest farming immigrants are found about a half mile down the river, and from them northeastward the region drained by the upper part of the Skunk river and extending thence to Mille Lacs is an unbroken forest.

The rock outcropping at "Granite City," from which the name arose, is coarse, gray gneiss, containing much black mica. Its strike is from northeast to southwest, and its dip is vertical, or within a few degrees of it, being in some places 85° or 80° to the northwest, and elsewhere the same to the southeast. This rock forms numerous bare hillocks and ridges, ten to thirty feet above the Skunk river, for a fourth of a mile along its northwest side, and occurring in less amount on its southeast side. It is also seen on the southeast side in an exposure of a few acres, rising ten to twenty feet above the river at a fourth of a mile farther east. All these outcrops, so far as seen, are gneiss, everywhere more or less contorted, often quite twisted and bent in lamination for short spaces, but having throughout a prevailing N. E. to S. W. strike and nearly vertical dip. The Skunk river is here ten to twenty feet wide, and flows in a meandering course among these ledges.

About six miles above "Granite City," on the northwest side of Skunk river, a little beyond where this stream is crossed by the road used for carrying the supplies distributed yearly to the Mille Lacs Indians, rock exposures are reported to cover as large an area as at "Granite City," but to have less hight above the adjoining surface of the drift. This is in or near the northwest corner of T. 41, R. 28.

Near the Platte river. Numerous outcrops of rocks occur within one to two miles west of the Platte river through the six miles next north of Gravelville, which is an enterprising new village, with mills, situated on this river in the N. E. ¼ of the N. E. ¼ of section 35, T. 41, R. 31. The first of these ledges are one to two miles north of Gravelville, in the N. E. ¼ of section 26, the east edge of section 23, and the west part of section 24, T. 41, R. 31. The longest extent of this tract is from northeast to southwest, reaching a mile and probably including sixty to eighty acres of rock. In the N. E. ¼ of section 26 it is granite, sometimes pink and sometimes gray, rising eight or ten feet above the general surface, which is nearly level. In the W. ½ of the N. W. ¼ of section 24, these ledges rise ten to twenty feet above the adjoining swamps. The rock here is a dark gray gneiss, mostly obscure in its lamination. The strike, at least in part, is S. 70° W., but generally, because of the contorted and indistinct lamination, it is not clearly exhibited.

In the north part of section 18, on land of John F. Whitney, and in the adjoining south part of section 7, T. 41, R. 30, one and a half miles northeast from the last locality, are extensive exposures of the same dark gray gneiss last described. It contains considerable black mica. It is for the main part obscurely laminated, and, though nowhere a true granite, it is rarely so definite in its foliation as to show strike and dip. In some portions the strike is seen to be from north to south; and the dip appears to be nearly vertical. Beginning near Mr. Whitney's house close to the center of section 18, frequent outcrops of this rock, rising one to five feet above the general surface, continue north to the north side of this section and into section 7. This section line crosses the most extensive of these tracts of rock, which covers some thirty acres, and here rises 25 or 30 feet above the adjoining swampy tracts. This gneiss has a nearly uniform character throughout the half mile here seen. Another outcrop of rock, probably the same, is reported one and a half miles farther north, near the center of section 6, covering about ten acres, and rising five to ten feet above the general surface. Three miles west from this a small ledge, covering five or six rods square, and one to three feet high, was found by surveyors near the middle of the north side of section 3, T. 41, R. 31, five miles east-northeast from Belle Prairie. Other ledges, which have not yet been observed, will probably be found in this district when its woods are cleared away. Thence northward to Brainerd and northeast to Mille Lacs, and beyond, no exposures of the bed-rock are known.

Slates, staurolite-bearing mica schist, and dioryte. The rocks which remain to be described in Morrison county, found along the Mississippi river and west of it, belong, as already stated, to a group lithologically different from the foregoing, and probably newer in age. The first exposure is on the Little Elk river near its mouth, about two and a half miles north of Little Falls. The most extensive outcrop here, about six rods square and ten feet in hight, is on the northeast side of the Little Elk river, opposite to Henry S. Hill's mill, about thirty rods above the mouth of this stream. This rock is dark, nearly black slate (argillyte), like that of Little Falls. It continues upon this northeast shore about ten rods down stream, southeastward, and for a few rods northwest above the dam; and is also visible in low exposures at the bridge, twenty rods above the mill. Opposite to the mill the course of the cleavage is N. 40° E. (referred, as are all the bearings stated in this paper, to the true meridian), and its dip is nearly vertical, varying to 80° S. E. This slate contains occasional veins of white quartz, from a quarter of an inch to two or three inches in width and one to twenty feet or more in length. These coincide closely with the cleavage in their strike and verticality. These slates throughout are rather soft and easily broken; and they are much divided, usually into rhomboidal masses from two or three inches to one foot in dimension, by joints. In one system of these joints, dipping about 60° S. E., they are mostly six to twelve inches apart in parallel planes. Other joints, dipping 20° to 45° to the north-northwest and from that to north, and a system dipping 15° W., are about half as numerous as those first mentioned. Another system of joints, cutting these, is vertical, or between vertical and dips of 60° to each side, with their strike between west-northwest and north-northwest. No macroscopic staurolite, garnet, nor pyrite crystals were noticed here, but distinct laminæ, made by aggregation of minute crystals of staurolite or mica, not fissile and extending transversely across the cleavage, are found in much of this rock, nearly as at Little Falls. These probably mark the original lines of stratification, but unfortunately their dip and strike here were not noted. The Mississippi river between this locality and Little Falls has numerous alluvial islands.

At the ferry, a half-mile above Little Falls, this slate has low outcrops two to six or rarely eight feet above the river. On the west side these are seen at several places for twenty rods below the ferry. On the east side they are best exhibited at the ferry-landing and for eight or ten rods farther north. The cleavage here bears N. 35° to 40° E., and is nearly vertical. Some four rods north of the landing a very compact layer occurs, ten feet thick, showing scarcely any slaty cleavage. About two rods farther north a quartz vein a foot wide was noted, conformable with the cleavage.

At the rapids, or Little Falls of the Mississippi, beside the town of this name, this dark slate, varying from mica schist to argillyte, has extensive outcrops in each shore, and forms the north end of Mill island, on the west side of which it makes a perpendicular cliff twenty feet high. The principal rapid extends a fifth of a mile from about 600 feet above this island to 500 feet below its north end, the descent being five feet. Here the slate has mainly a firm and strong texture, having been only slightly decomposed or softened by weathering; but it is too variable in its cleavage, and is too frequently contorted and intersected by veins and joints, to promise well for quarrying for roofing-slate. It has been slightly quarried on the east shore, nearly opposite to the north end of Mill island, for use in foundations, but no massive blocks nor any of regular form are obtainable. Its cleavage is usually quite perfect, into sheets a fourth or an eighth of an inch in thickness; it is nearly vertical, not varying from this more than five degrees to either side, so far as seen in my examination; and its strike is N. 25° to 35° E. A lamination transverse to the cleavage, and supposed to indicate the original planes of sedimentation, but not showing any tendency to split, was found well exhibited in a section twenty feet long and five feet high, at the outmost point beside the river on the east shore. The laminæ or layers referred to are from a twentieth to an eighth of an inch thick, and differ from the remainder of the macroscopically homogeneous slate in containing many minute crystals of staurolite and perhaps mica. These layers, which are very distinct, show many small undulations; but, in respect to their entire extent, run nearly in a straight line. Their dip is about 15° N.W. White quartz veins occur somewhat frequently in this slate, varying from an eighth of an inch to three inches in width, and extending from ten to fifty or seventy-five feet. Their strike and dip are conformable with the slaty cleavage. The thickest of these veins, situated in the channel of the river, is said to be one foot wide. In the east part of Little Falls this slate is encountered at the depth of about ten feet in digging wells; but it is not found thus in the west part, between this and its exposure at the river.

In some small portions of these outcrops the slaty cleavage is absent or scarcely noticeable, and the rock, massive, compact and hard, with sharp jointage angles, is apparently a dark quartzyte. Professor Winchell adds*: "Besides these variations there are nearly continuous layers of more or less lenticular and concretionary lumps or nodules, sometimes six or eight inches thick, of a rock very firm and dark-colored, but which on weathering becomes superficially lighter-colored, and shows needles and spangles of dark-green amphibole. The matrix in which these crystals lie is not well characterized, but is quartzitic and perhaps also feldspathic, so that on a fresh fracture the amphibole crystals are hardly observable. They appear on the weathering of the rock. . . . . A system of joints gives the rock, viewed across the river, the appearance of being conspicuously stratified, with a dip up the river of about 45 deg. from the horizon. The slatiness, which is nearly perpendicular, is somewhat injured, at least superficially, by the frequency of joints, of which there are at least two systems intersecting each other at a small angle, thus cutting the slates into rhomboidal masses, as they weather to pieces. . . . . Opposite the village of Little Falls a trap dyke of basic doleryte, apparently about 10 feet wide, appears in the slate, going diagonally across the slate; and on the south side of the dyke, in the lee of its protection against the current of the river, as well as against, possibly, the ice of the ice-period, the slate (or schist) is decomposed to the depth of four or five feet at least, making a greenish-blue clay, or incipient kaolin."

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*Sixth annual report of this survey, p. 50.

At Campbell's point, on the east shore of the Mississippi, about a half mile south of the middle of Little Falls village, and about a fifth of a mile south from the south end of Mill island, rock is exposed along a distance of five or six rods, rising eight or ten feet above the river. In describing this rock and its probable origin, professor Winchell states that it "consists, in general, of a hard, dark-colored dioryte, containing mainly amphibole in coarse crystals, and a little feldspar (labradorite?). The outward characters of this rock are the same as the concretionary lumps that exist in the slate already described. It is here simply in larger area and bulk. It is parted by joints that cause it to fall to pieces in slabs and cuboidal masses. This *may be* here in the form of a dyke, but its relation to the slate cannot be seen. The point which is formed by it is considerably higher than the bottomland on either side, but falls away somewhat on receding from the river, the rock itself becoming lost to view in the swampy bottoms, or involved with the drift of the river-bluffs. On long-weathered surfaces, under the action of the water, there is a ridged and furrowed form that shows the same direction and trend as the slatiness of the slate, i.e. N. 18 deg. E. [magnetic]. The ridges are about ¼ inch apart, and about ⅛ or ¼ inch high, separated by intervening furrows. This surface configuration is apparently due to the alternate arrangement of the mineral contents, and perhaps has its origin in a metamorphosed condition of the slate itself, or of the sedimentary rocks from which they both may have been derived. Thus this could not be of the nature of an igneous dyke, but a metamorphic variation due to the complex nature of the original sediments. This view is strengthened by the occurrence of a similar dioryte rock, in concretionary masses, in the slate itself, running in more or less regular layers or lines. This alternation of mineral contents does not pervade the whole of the rock exposed on 'the point'; but it is a conspicuous feature in some places. The ridges are composed of the lighter-colored minerals, and the furrows of the amphibole."

At Pike rapids, which are three and a half miles south of Little Falls and about a quarter of a mile south of the mouth of Swan river, numerous low outcrops of schist occur in the banks and channel of the Mississippi along a distance of about an eighth of a mile, from the head to the foot of these rapids, which descend four or five feet. The rock here is a mica schist, containing many large crystals of staurolite and often small garnets. No veins or masses of quartz were noticed. On the west shore, which is only six to ten feet high, its exposures are numerous, but rise only one to five feet above the water. It rises in the channel of the river above its bed of boulders and sometimes above the water at frequent intervals across its whole width, the most conspicuous of these ledges being an island eight or ten feet high near the east side of the river. Small and low outcrops are also seen in the east shore, which is a steep bank of glacial drift, till capped with gravel, about 40 feet high. This rock has a laminated structure, which corresponds in strike with the cleavage of the slate at Little Falls and on the Little Elk river. Therefore, it should not, probably, be regarded as representative of the original layers of sediment, from which this rock has been derived by metamorphism. This lamination or foliation in the outcrops along the west shore of the river at Pike rapids has a strike N. 20° E., with a dip 70° to 75° N. 70° W.*

At Cash's rapids, about two and a half miles below Pike rapids, schist nearly like the foregoing occurs in low outcrops in the channel and on the west shore, rising two or three feet above low water.

About a quarter of a mile below the last, and probably in the north edge of section 17, Bellevue, rock almost exactly the same as at Pike rapids is seen in the east shore of the river along a distance of about fifteen rods, rising at the highest place, near its south end, fifteen feet above low water. Its lamination has a strike N. 25° to 30° E., and dips about 45° N. 65° W. Some twenty-five or thirty rods farther south, it again has a small exposure in the east bank, and forms an island which rises about eight feet above low water, and extends eight or ten rods from northeast to southwest, situated about a third of the way across the river from its east side.

Half a mile farther south, at the middle of Muncy's rapids, which are a quarter of a mile long, mica schist, filled with many large staurolite crystals, and sometimes also including small garnets, as at Pike rapids, extends about twenty-five rods along the east shore of the Mississippi, rising some eight feet above low water. This is on land of Isaac P. Lambert, in the north part of the S.W. ¼ of section 17. Bellevue. Its strike, nearly the same as at the last place, is N. 25° to 30° E., and its dip is about 60° N. 65° W. It has been slightly quarried for cellar walls, etc., and lies in layers from three inches to one foot thick. This rock also juts up at many places in the adjoining channel of the river along a distance of fifty rods or more, rising two or three feet above low water.

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* The site of the fort or stockade in which Lieut. Z. M. Pike and his men spent the winter of 1805-6, from which the rapids received their name, has been found by Mr Nathan Richardson, of Little Falls, at a point on the west side of the Mississippi about fifty rods below these rapids, on nearly level land som fifteen feet above the river, and not over sixty feet from its shore at low water. This stockade was about thirty-eight feet square. At its northwest corner is a large pile of stones, doubtless used for a fireplace The first settlers, twenty-five years ago, saw two of the bottom logs still remaining.

About a half mile below the last, the same staurolitic mica schist outcrops at the west side of the river, having an extent of only a few rods. but rising steeply to a hight of fifteen feet or more above the river. This is on the land of Charles Gillpatrick, in the N. E. ¼ of the N. W. ¼ of section 32, Swan River. Its strike is N. 20° E., and its dip is about 70° N. 70° W. It contains occasional masses or bunches of white quartz ; one noted being a foot in length. This is the most southerly exposure of the staurolitic schist, which thus has frequent outcrops for four miles along the Mississippi, at Pike rapids and southward. Its lithological characters are nearly uniform throughout this extent; and its lamination has a nearly constant strike and dip. Proceeding northward, we find this strike and dip continued in the cleavage of the slate at Little Falls and on the Little Elk river, but with a slight deviation of the strike to a more northeasterly course. Beyond these outcrops northeastward, the nearest exposure of similar rocks is the district of slate ledges at the Northern Pacific Junction and on the St. Louis river, a hundred miles to the east-northeast. There the cleavage strikes nearly due east.

The only remaining outcrops of these crystalline rocks beside the Mississippi in Morrison county are about a half mile south from the last, being at Blanchard's rapids, best exposed upon the west side of the river, on land of Allen Blanchard, in the S. E. ¼ of section 32, Swan River. Here ledges are seen at numerous places upon an area of twenty or twenty-five acres, but nowhere rising more than two to four feet above the general surface. The largest exposure beside the river is fully a hundred feet long and averages forty feet in width. This is uniformly a very hard, compact, dark dioryte. It has no staurolite crystals. It shows no lamination, but is very much divided by joints, which are from one or two inches to a foot apart and nearly vertical. Their two principal sets bear N. 75° W. and due N. Lumps of white quartz, up to six inches in diameter, occur in this rock; and a vein of it a foot wide was reported, but at the time of my observation was covered by high water. This rock reaches in occasional outcrops one or two feet above low water some three-fourths of the way across the river, which is here an eighth of a mile wide; but it has no exposures on the east shore. About ten rods west from the large outcrop beside the river, nearly the same rock, but much less divided by joints and somewhat finer-grained, is exposed upon a space about a hundred feet square, from which the covering of drift, with a thick growth of timber, was swept away about ten years ago by the sudden flood from a broken ice-gorge.

A stratum of rock, apparently belonging in the same group with the preceding, was encountered by the well of Mr. Calvin A. Tuttle, two and a half miles south from the last and close north of the mouth of the "main Two rivers." This well is about 23 feet above the Mississippi, which flows close at the east. Its depth of 50 feet was as follows: soil, 1½ feet; gravel, with pebbles up to six inches in diameter, 4 feet; "white stony clay," probably a marly till, 4½ feet; bluish till, 7 feet; apparently decomposed rock, of various colors and in irregular masses, with considerable kaolin in oblique layers, up to about six inches in thickness, 8 feet; and thence to the bottom, apparently a decomposed hydromica schist, dug into 25 feet and bored into 4 feet deeper. At the time of excavation, which was done with pick and shovel, this rock was thrown out in pieces up to ten pounds in weight; but all these, within a few weeks, by exposure to air and rain, were crumbled to a powder. It had no staurolite crystals, but occasional quartz lumps, from three to ten pounds in weight, and one of fifty pounds, were found in it.

On the Swan river. Swan river, in the southwest corner of section 1, of Swan River township, about one and a half miles above its mouth, as reported by Mr. Samuel Lee, has a fall of nine feet in six rods, over a bed of rock closely like that of Pike rapids, one and a half miles east. He thinks this has no exposure in the banks, of which that on the northeast is low, while that on the southwest is about 40 feet high, being composed of gravel and sand.

At the Ledoux bridge on Swan river, in the S. E. ¼ of the S. E. ¼ of section 4, Swan River township, a dark, compact rock, in part slaty and in part resembling quartzyte, is exposed in the bed of the stream and forms the foundation of the bridge abutments. Specimens were obtained; but observations of jointing, cleavage, or lamination, were prevented by the high stage of the water. Several exposures of this rock are reported in the channel of the river within a quarter of a mile above and below this bridge.

West of Little Falls. In the S. E. ¼ of the N. E. ¼ of section 13, T. 129, R. 30, about one and one half miles northwest of Little Falls, numerous outcrops of rock, rising one to five feet above the general surface, occur upon an area some thirty rods long from north-northwest to south-southeast, and ten to twenty rods wide. This rock is all massively crystalline, with no apparent lamination or cleavage. It is all quite dark, probably including much hornblende. In part it is fine-grained; but mostly it is about medium-grained, and in part is quite coarse. The last of these varieties is sometimes decayed and friable, but mainly this rock is very compact and hard, not readily splitting in any particular direction. No staurolite, garnet, nor pyrite crystals were observed. Nearly all the varieties of this rock, when long exposed to the weather, tend to exhibit crystals of a greenish mineral, a sixteenth to a fourth of an inch long; and by further weathering these are dissolved, leaving small cavities. Mica is rarely present; it was noted only in narrow veins, a half to one inch wide and of small extent. These ledges are on the east border of an area of till, which thence extends indefinitely westward. They are ten to fifteen feet above a grass-marsh, a half mile wide, which lies on the east and southeast, but are scarcely higher than the plain of modified drift which occupies the Mississippi valley eastward.

Near the fork of Little Elk river. The only other outcrops of the crystalline rocks known in Morrison county are in the N. E. ¼ of section 7, T. 130, R. 30, being between the north and south forks of the Little Elk river, about a quarter of a mile northwest of their junction. One of these ledges is crossed by the road some thirty rods west from the ford of the north fork. Thence the rock reaches about fifteen rods south, with a width of one to two rods; but northward its exposures extend fully an eighth of a mile, occurring frequently upon a width of five to ten rods. It is said to have no outcrops upon any of the streams of this vicinity. As this whole region is woods, other outcrops may have escaped notice. The rock here rises in ragged knolls and small north-to-south ridges, three to eight feet above the general surface, which is 10 to 25 feet above the north fork. It is nowhere massively crystalline, like the diorvte at "the point" near Little Falls; but is a dark schist, having always a more or less distinct lamination, often irregular and contorted. Its strike is uniformly from northeast to southwest, or within five degrees of this; and its dip varies from vertical to 75° N. W. It has no slaty cleavage, and is all very compact and hard, with few joints. In color and texture it is nearly like some portions of the Little Falls ledges. So far as examined, it has no staurolite nor garnet crystals. In one place a specimen was obtained, holding numerous large pyrite crystals, but these are not generally noticeable. This dark rock sometimes becomes by weathering spotted with brown particles; and by further weathering these are dissolved, leaving a minutely pitted surface. Often the rock includes gray, apparently quartzose, lenticular masses, a half to one inch thick and four to twelve inches long, coinciding with the nearly vertical northeast-to-southwest lamination. It has been slightly quarried by Gilbert T. Smith for his mill, situated a half mile to the east.

STEARNS COUNTY.

Ashley. The most northwestern rock-outcrops of this county are found in Ashley township, eight miles west of Sauk Center. They lie close south and southwest of a school-house at the south side of Ashley creek, partly in the S. W. ¼ of the N. W. ¼ of section 17, owned by George H. Pendergast, and more in the S. E. ¼ of the N. E. ¼ of section 18, on land of Lucas Kells. This rock has numerous exposures, the largest being about a hundred feet long, upon an area which reaches thirty rods from east-southeast to west-northwest, their hight being from one to five feet above the general level. It resembles syenite, but contains much of a light-green mineral (probably epidote), like that mentioned in the ledges thirty and thirty-five miles farther north, in Todd and Cass counties. This takes the place of hornblende and mica, neither of which can be detected. Joints occur from one to five or ten feet apart. No schistose or laminated structure was observed. Vein-like masses of coarsely crystalline orthoclase, enclosing small amounts of white quartz and of the green mineral, occur in this rock at many places, often extending ten feet or more, and varying from one to several feet in width. These ledges may be quarried for coarse masonry. Their surface is smoothed by glacial erosion, but retains no striæ.

Sauk Center. Exposures of rock are found at the southwest side of the railroad from an eighth to a fourth of a mile southeast from Sauk Center depot. They are partly upon the land of the railroad, but mostly for their western portion upon land owned by Tobias

Carl. The largest outcrop is about fifty rods from the depot, and a hundred feet southwest of the railroad, covering an area about six rods long from northwest to southeast by two to three rods wide, and rising only one to two and a half feet above the general surface. This ledge has several distinct varieties of rock. The greater part is a reddish feldspathic gneiss, laminated from northeast to southwest, or a similar syenite where this lamination is absent. Masses a few feet in extent, not definitely separated from the foregoing, are very coarsely crystalline, flesh-colored feldspar and quartz ; the latter constitutes about one-fourth part; and both occur in crystalline masses one to two inches long. Portions of this gneiss and syenite are porphyritic with feldspar crystals up to a half inch, or rarely an inch, in diameter.

The most southern part of this ledge, extending thirty feet from east to west, and ten feet wide, divided from the last by a width of about two rods which is covered with drift, is a very hard and compact, dark, granular rock, perhaps to be called syenite, in which the most abundant mineral is apparently hornblende. A small space of this, about eight feet long and four feet wide, shows a vertically laminated structure, curving from a south to a southeast course.*

Eight rods west from the last is another exposure of the same hard, dark rock, about two rods in extent, not rising above the general level. About fifteen rods west-northwest from the large outcrop first described, another of similar rock is found, being mainly gneiss, laminated from northeast to southwest. This ledge is about fifty feet long from west-northwest to east-southeast, and rises from one to one and a half feet above the general surface. Again, some twenty-five rods southeast from the first described exposure, excavations at each side of the railroad, five to fifteen feet below the track, show the dark, tough hornblendic rock, like its two exposures farther west, except that here it is more intersected by joints, which are from one to six feet apart. On the southwest side of the railroad this rock is uncovered for a length of a hundred feet; but on the northeast side only two or three small knobs are visible. None of the outcrops are suitable for quarrying.

Melrose. The next exposure of the bed-rock is eight miles east-southeast from the last, at Clark's mill. in Melrose. This mill, situated on the south side of Sauk river about ten rods west of the bridge, is founded on a ledge of very hard, coarse, red syenite, which also extends some twenty-five feet from the mill, half-way across the waste-way of the dam.

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* Glacial striæ, clearly seen on the west part of this southern outcrop, bear S 40° E., being at right angles with the striæ noted in Sauk Rapids, about forty miles farther east.

In the west part of Melrose village, a third or half of a mile west from this mill, and on the level plain of valley drift, rock has been encountered in attempts to dig wells at W. H. Rothaermel's house. Its depth below the surface is about six feet, and it has an extent of a hundred feet or more. A well blasted into this rock supplied the stone for the foundation of the Methodist church near by. It is a dark, unlaminated, rather coarsely crystalline, hornblendic rock, different from any other found in this district.

Wakefield. Several outcrops of very hard, dark dioryte, and of coarse syenite occur within a radius of a fourth of a mile about the corner of sections 19, 20, 29 and 30, Wakefield. This is on the north side of the Sauk river, two miles east of Richmond, and about twenty miles southeast from Melrose. One of these knobs rises forty feet above the general level. The abutments of the Richmond bridge were quarried at this locality.

About one and a half miles farther east, near the center of section 21, a small outcrop of coarse syenite occurs in and close south of the road, its length being four rods and its hight three or four feet. It is intersected by joints at intervals of two to six feet.

At Cold Spring, one and three-fourths miles farther east, a fine-grained, reddish, much jointed syenite has abundant outcrops, underlying the mill and dam, and covering an area on both sides of the Sauk river equal to a quarter of a mile square, with its highest points 20 to 25 feet above the river. It has been somewhat quarried for local use in foundations, walls, etc.

Rockville. Four miles farther east, massive outcrops of coarse-grained, gray granite, containing black mica, which weathers to yellow, occur near Rockville. The most prominent mass of this rock is at the east side of Mill creek, a quarter of a mile south of Rockville mill, forming a knob forty or fifty rods in length and breadth and fifty feet high. This rock is very free from joints or seams, being sometimes unbroken for thirty or forty feet. Otherwise it appears to be well adapted for quarrying, to supply stone for heavy masonry, as bridge piers and abutments. Two other exposures of this rock are found a quarter of a mile northeast from this mill. The most southerly of these, situated east of the road, covers some thirty rods square, and rises about forty feet above the river; and the second, less than an eighth of a mile farther north, crossed by the road, and lying mostly between the road and the river, covers an area 30 by 20 rods in extent, and rises 20 to 30 feet above the river. Both consist of massive, rounded ledges, with few seams or joints, which are often twenty to thirty feet apart.*

Saint Joseph. In the N. E. ¼ of section 26 of this township, nearly four miles northeast from Rockville, massive, coarse-grained, gray syenite or granite, closely like that of Rockville, is exposed on the land of Fred Schilplin, about an eighth of a mile southeast from his house. It forms a rounded outcrop some twenty rods broad, rising ten feet above the general level, its hight above the Sauk river, three-fourths of a mile to the northwest, being about 35 feet. This ledge has few joints, one space fifty feet square being without a seam.

One and a half miles west-southwest from the last, an exposure of rock is reported in section 27, on land of I. S. Staples, at the east side of Sauk river, above which it is said to rise five to ten feet, covering an acre or more.

Saint Augusta. Granite, containing flesh-colored feldspar and black mica, is exposed near the middle of section 19, Saint Augusta, about a fourth of a mile west of Luxemburg post-office and St. Wendel's church. This is four miles east-southeast from Rockville and eight miles south-southwest from Saint Cloud. It lies on the west side of a slough, above which it rises 15 to 20 feet, its extent being about twenty rods. It is divided by joints three to fifteen feet apart; the course of their principal system, nearly vertical, is from northwest to southeast.

Saint Cloud. This township has many exposures of these rocks, principally syenite.

In the N. E. ¼ of section 32 a reddish gray syenite or granite, and in the N. W. ¼ of section 33 a very dark syenite, containing a large proportion of hornblende, form quite extensive outcrops, in each case covering an area equal to a quarter of a mile square. An eighth of a mile west of the road, these rounded hillocks of rock rise 20 to 25 feet above the general level; and close east of the road and for an eighth of a mile or more from it, their hight is five to ten feet. About forty rods farther north, the road goes by ledges of syenite nearly like that of the quarry at Sauk Rapids. These are probably in the southeast corner of section 29; they lie close west of the road, above which they rise 15 to 20 feet. The next two miles to the north and northwest have abundant outcrops of gray and reddish syenite, of which the following is a list in part.

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*These and nearly all the ledges of eastern Stearns county are planed and worn to a smooth surface by the ice-sheet; but none of them, so far as seen in this survey, retain glacial striæ, because of the slight disintegration wrought upon their surface by rains and frosts.

On land of Jacob Streitz, in the N.W. ¼ of the N. E. ¼ of section 28, considerable quarrying has been done, forty cords or more of the stone having been sold for masonry in Saint Paul. This is an excellent gray syenite, rising about ten feet above the general surface, well adapted for supplying dimension stone. It is near the eastern side of this tract of abundant ledges; and the hills one to one and a half miles east and northeast, rising 50 to 75 feet higher and 125 to 150 feet above the Mississippi river, are morainic drift.

A quarter of a mile west of the last, on land of Louis Hohmann, in the N. ½ of the N. W. ¼ of section 28, ledges of the same rock as the last cover two or three acres, rising about five feet above the general level of the surrounding modified drift. Some quarrying has also been done here.

On land of Ferdinand Hartmann, in the north edge of the N. E. ¼ of section 29, he has quarried during several years, in two low outcrops of syenite, selling the stone for $3 per cord at Saint Cloud. The southwestern outcrop, six rods square, is a somewhat coarse-grained, reddish syenite, divided by joints from one to eight feet apart. The other ledge, fifteen rods north-northeast from the last, is about ten rods long from west to east by six rods wide. This is mainly red syenite like the former, but includes a large mass, occupying an area about four rods square, of finer-grained, bright gray syenite, containing occasional scales of black mica. At its border a gradual change of color takes place from the gray to the red.

An area of several acres of reddish syenite, like that of the last localities, begins thirty or forty rods northwesterly from the last, and reaches a sixth of a mile or more northward. This is on land of Matthias Leim, in the S. ½ of the S.W. ¼ of section 20, and of Nicholas Scheuer in the north half of the same quarter-section. It rises in rounded hills and knolls 30 to 50 feet above the lowland eastward.

About forty rods northwest from the last, in the N. W. ¼ of the S. W. ¼ of this section 20, owned by Nicholas Scheuer, gray syenite, closely like that of Streitz and Hohmann, and of Hartmann's northern quarry, forms a hill which covers six or eight acres and rises 50 feet above the general surface. It is smoothly glaciated, but retains no clear striæ. This rock has few joints, sometimes none for an extent of thirty feet. Here and upon many of the ledges of this region a scale of rock a fourth to a half of an inch thick, has become separated or is easily separable from the surface by weathering. In some places this might be attributed to forest or prairie fires, which seem often to have produced such scaling; but here it is notably exhibited on bare ledges six rods or more in extent.

Within a mile westerly are many lower outcrops of this syenite, rising 10 to 20 feet above the average of the vicinity. Good locations for quarrying are reported on the land of William Besinius, in the S. E. ¼ of section 19, and of Jacob Hiltimes in the west half of this section.

The red syenite continues from the ledges owned by Hartmann and Leim northerly to the land of the Saint Cloud Granite Manufacturing Co., L. A. Evans, agent. This is the N. W. ¼ of the S. W. ¼ of section 17, where excellent quarrying stone is found. A few years ago a block of this red syenite was obtained for a monument pedestal, which had been sought but could not be supplied (so reported) from the famous quarries of similar stone at Aberdeen, Scotland. The size of this block was 7 feet square by 2½ feet high, its weight being ten tons. It was cut and polished in Saint Cloud, and was sold in Chicago for about $860. This quarry has not been worked for the past two or three years.

Excellent localities for quarrying the same red syenite also occur within a half mile west and southwest from the last, in the S. E. ¼ of section 18, owned by H. C. Waite, and in the N. W. ¼ of section 19. Some of these localities also yield gray syenite, and that which is gray, tinted reddish.

Syenite outcrops in the N. W. ¼ of section 17, at the northwest side of the road about a half mile west of John Becker's. Its extent is about fifteen by ten rods, and its hight is some twenty feet above the adjoining lowland and river, an eighth of a mile west, and eight feet above the road. This ledge exhibits some marks of water-wearing. A system of nearly vertical joints crosses it from north to south, varying from six inches to four feet apart; and others, less conspicuous and less numerous, extend from east to west.

The only exposure of rock beside the Mississippi river in this county below the Saint Cloud bridge, is about a half mile south of the state normal school, at C. Bridgeman's steam saw-mill and for twenty rods to the south. It is coarse gray syenite, with joints ten to twenty feet apart, and forms small ledges five to ten feet above the river.

Fifteen to twenty rods south from the west end of the Sauk Rapids bridge, is a ledge of porphyritic, gray syenite, consisting mostly of feldspar, with about a fourth part of quartz, and including some hornblende and rare grains of mica. It rises some five feet above the river, and is traversed by nearly vertical joints one to eight feet apart. It has been slightly quarried.

Le Sauk. In this township, situated next north of Saint Cloud, these crystalline rocks are exposed upon the lowest mile of Watab river, and at several places within three miles thence north-northwest. The grist-mill and its dam, owned by J. B. Sartell & Sons, on the Watab river, about a third of a mile above its mouth, are founded on gray syenite. This is exposed to view only on the south side of the river, under the foundation of the north side of the mill, rising a few feet above the water of the flume below the dam. It was quarried for this mill, and is a desirable building stone.

Mr. Sartell owns another quarry a half mile northwest from this mill, covering several acres and rising twenty feet above the general level. It is in or near the S.E ¼ of section 17. This has a more reddish tint. Quarrying has been done here more or less during the past ten years, perhaps yielding quarried stone to the value of $1000 in all, only for use in this vicinity.

A third of a mile east of the last, in the south part of section 16, is another outcrop of rock, similar to that at the grist-mill. This covers about two acres. It has a low smoothed surface, not much above the general level.

Another ledge of similar syenite or granite is seen at the west side of the road, east of the north part of Clark lake, in the south half of section 8. This also covers two acres or more, its hight being about ten feet.

On or near the east line of section 9, a rock-outcrop, said to be coarse-grained and of iron-rusty color, covers several acres and rises some fifty feet above the Mississippi river, which is ten or twenty rods farther east.

Reddish fine-grained syenite has been somewhat quarried for local use, in or near the N. E. ¼ of the N. E. ¼ of section 7, on land of D. B. Searle. Farther northwest, near the center of section 6, similar rock has outcrops at many places along a distance of about half a mile from east to west, not extending into Saint Wendel township.

Brockway. A medium-grained, gray granite or syenite, containing garnets a fourth of an inch in diameter, is exposed on the N. W. ¼ of section 33, in the southeast part of Brockway, on land of William Gordon, about a quarter of a mile west from the road and from his house. It shows only a smooth flat surface, ten by fifteen feet in extent, not rising above the general level.

Rock is also reported to occur in the west shore of the Mississippi river, about fifteen rods south from the northeast corner of this section 33. The rock is exposed also in the east bank and in the channel of the river, but its outcrops rise only two or three feet above extreme low water. This is about a mile north of the high hills of rock at the east side of the river in Watab.

SHERBURNE COUNTY.

The principal quarries of the district here reported are near Saint Cloud, but are situated on the opposite side of the Mississippi, in Sherburne and Benton counties. In their order from south to north, these quarries are in Haven, the northwest township of Sherburne county, and in Sauk Rapids and Watab, the townships which succeed next to the north, lying in Benton county, all bounded by the Mississippi river on the west.

Haven. The most southern rock-outcrop is in the S. ½ of the S. W. ¼ of section 17, four miles southeast of Saint Cloud, and about two-thirds of a mile west of the Saint Paul, Minneapolis & Manitoba railway. It is owned by Robbers & Barthelemy, and was by them leased in May, 1881, for two years, with privilege to extend the lease three years more, to the firm of Saulpaugh & Co., of Rock Island, Illinois, who are contractors for building the bridge for the Northern Pacific railroad across the Missouri river at Bismarck. They have also leased quarries in Watab for this bridge, which in its abutments and four piers requires 7000 cubic yards of cut stone. The outcrop has an area of four or five acres, being about thirty rods across, and rises with a rounded, smooth surface of bare rock ten to fifteen feet above the surrounding prairie of nearly level modified drift. Hence it is often called the "rocky island" or "rocky point." About ten rods west of the main outcrop is another of small extent.

This rock is a coarse-grained syenite, of whitish gray color, with dark blotches of hornblende. It is evidently a stone of great strength and durability. The first quarrying at this point was by Daniel Burns, of Sauk Rapids, in 1879, supplying stone, some 600 cubic yards, at price of about $9,000, for the Mississippi river bridge of the Chicago, Milwaukee & Saint Paul railway on the short line between Saint Paul and Minneapolis.*

Two miles north from the foregoing and the same distance southeast from Saint Cloud, are the quarries of Breen & Young, situated close west of the railroad, nearly on the line between the S. E. ¼ of section 6, and the N. E. ¼ of section 7, Haven. The rock here has frequent exposures along a distance of nearly a half mile from the quarry, to the southeast and northwest, rising five to twenty feet above the adjoining marshy lowland. On the south and southwest side it is covered by morainic drift, which forms a ridge 40 to 50 feet high and of irregular contour, reaching from the railroad westward through section 7. Most of these ledges are a gray syenite of fine grain and uniform texture, well suited for building purposes. It is used in the corners, steps and trimmings of the United States custom house and post office, in Saint Paul. Breen & Young employ about twenty-five men here in quarrying. The greater part of their stone-cutting, especially for ornamental work, is done in their shops at Saint Paul. Their quarry of this syenite, commonly called granite, has been wrought since 1868; the extent of the principal excavation is about 250 by 200 feet, and its depth is mostly from four to six feet. About thirty rods west of this opening is an area of reddish syenite, which has been slightly quarried. The same color is also seen in small outcrops a sixth of a mile farther north beside the railroad.

In Haven and generally through Benton and Stearns counties, this belt of crystalline rocks consists mainly of syenite, which differs from true granite in containing the mineral hornblende instead of mica, both being otherwise alike composed of quartz and feldspar. The three ingredients of each occur in crystalline grains; and no schistose or laminated structure, and consequently neither dip nor strike, are observable. The common species of feldspar present in these granites, syenites, gneisses and schists, is orthoclase.

NOTE. These are the only exposures of rock in place in Sherburne county. Principally the surface of this county is the stratified sand and gravel of the modified drift, bearing a thin forest growth in which black and bur oaks are the most abundant species. Comparatively small areas or belts are composed of till, or intermixed clay, sand, gravel and boulders, unstratified. The boulders are mostly syenites, granites and crystalline schists, with occasional pieces of limestone. In size they are mostly less than five feet in diameter, and boulders more than ten feet in diameter are very rare in nearly all parts of

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* No boulders are seen on the surface of this ledge; and though it is wholly moutonned, or smoothly planed and rounded by glacial erosion, no distinct striæ were found.

Minnesota. One of the largest found in this state is the "big rock," situated on land of Peter E. Clarity, in the N. W ¼ of the S. W ¼ of section 7, Palmer, six miles east from Breen & Young's quarry. The dimension of this mass is about 20 by 35 feet, and its hight is 20 or 25 feet It probably also reaches several feet below the surface, from which it rises perpendicularly on all sides. This boulder is dark mica schist, varying to gneiss, coarsely laminated, with much black mica and many minute garnets, and containing in some portions whitish feldspathic layers from a quarter of an inch to two or three inches in thickness From it numerous fragments, three to ten or twelve feet long have been riven off by frost, especially on its northwest side. It lies on a southwesterly sloping swell of till which forms part of a morainic belt, 20 to 50 feet above the general level, extending from section 9, Palmer, west to section 7, Haven.

BENTON COUNTY.*

Sauk Rapids. This township has many outcrops of rock. The quarry which has been longest worked and yields the best stone, a fine-grained gray syenite, especially adapted for ornamental use and for cemetery monuments, is situated nearly in the center of the village of Sauk Rapids. It was first opened by Mr. F. A. Fogg, in May, 1867, and was worked by him four years. It is now owned by Collins, Mitchell & Searle, of Saint Cloud, and within the past three years has been leased and worked by Messrs. Burns, Reeder and Robinson, who cut and polish the stone near the quarry. The excavation is about 150 by 100 feet in extent, and five to seven feet deep. The sales are about $2,000 annually, and have varied from $500 to $10,000 a year. In Minneapolis the towers of the suspension bridge and the city hall are trimmed from this quarry, the rest being Trenton limestone. In Saint Paul the wholesale hardware store of Nicols & Dean is built from this quarry, except the columns and buttresses, which are from Watab. In Milwaukee this quarry supplied the polished front of the Mitchell Bank building, some of the slabs used being 11 feet by 3 by 1 foot in dimension. The Iowa state capitol at Des Moines, recently built, took part of its stone for trimmings from here, some of the pieces measuring 10 by 2½ by 2 feet. This syenite is closely like that of Breen & Young's quarry in Haven.

A coarser syenite is exposed about a quarter of a mile farther west, at the east end of the Sauk Rapids bridge and dam, which are founded in part upon this rock. Its outcrop, coarsely porphyritic, a few rods south of the west end of this bridge, is described on a preceding page, with the other rock exposures of Saint Cloud, Stearns county.

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* The drift in this county is generally till, having a moderately undulating or rolling contour, with no conspicuous elevations, but rising in gentle swells 40 to 60 feet above the streams It is mainly covered with heavy timber, all of deciduous species, excepting in the north and east portions of Alberta, which have a good growth of white pine. Upon the greater part of the county the bed-rocks are wholly covered by the drift.

The fall in the Mississippi here in about one mile, from the mouth of the Sauk river to Maple island, is 22 feet, from 992 to 970 feet above the sea. Its channel is strown with boulders, but has no extensive exposures of solid rock.

About a mile east from Sauk Rapids, in the N. W. ¼ of section 24 of this township, an outcrop of reddish, rather fine-grained syenite occurs in a swampy depression, some twenty-five rods south of the Gilmanton road. Its area reaches about twenty rods from north to south and is about ten rods wide, with a hight of two to five feet. This rock is traversed by joints from one to ten or fifteen feet apart. Its surface is smoothly glaciated but retains no striæ.

An exposure of gray syenite occurs in the S. W. ¼ of section 13 of this township, on land of Robert W. Leyerly. Its extent is about 50 by 30 feet, with hight of three feet above the adjoining marshes. It is crossed by joints two to eight feet apart.

In the N. W. ¼ of section 13, on land of the E. D. Learned estate. a coarse-grained reddish syenite, with large proportion of feldspar, covers an area thirty rods or more in length toward the west-northwest, averaging eight rods in width. Its higher portions are four to seven feet above the marsh which mainly surrounds it. This rock is very massive, extending in some places thirty to forty feet without a joint. It is cut by a trap dike, the ordinary dark and tough doleryte, one to one and a half feet wide, and reaching within view about fifty feet from east to west.

Extensive outcrops, partly of coarse-grained reddish syenite, and partly of finer-grained gray syenite, of which the latter has been considerably quarried, occur on the N. E. ¼ of section 14, on land of Joseph Moody; covering some thirty acres and rising 25 feet above the adjoining swamps, or 75 to 100 feet above the Mississippi. This rock is mostly divided by joints from six inches to five feet apart.*

Syenite nearly like the coarse reddish portion of the last or that described in the N. W. ¼ of section 13, occurs also at several places in the S. E. ¼ of section 11, on land of William Kouts. Its most northerly exposures are about sixty rods north of the south line of the section, and do not rise above the general level of the surrounding marshy land. A smooth surface of this rock, about fifty feet across, being the largest patch seen here, has no joint or seam. An outcrop of this rock about a hundred feet square, lying some forty rods south-southwest from this, upon the same quarter-section and three to ten rods north of its south line, rises five feet above the general level and is divided by joints three to eight feet apart, mostly running north and south, with others less numerous from east to west.

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* In several places on this quarter-section distinct glacial striæ were observed, bearing S. 45° to 50° W., by the true meridian. At another point, a few rods from these, their course is S. 15° W. On the other ledges of this township before described, these marks have been effaced by weathering.

In the N. E. ¼ of the N. W. ¼ of section 11, owned by Collins, Mitchell & Searle, and in the adjoining N. ½ of the N. E. ¼ of the same section, owned by E. E. Beal, are large exposures of red syenite, which has been quarried somewhat. It covers about ten acres, and rises ten to twenty feet above neighboring depressions. At the quarry it is distinctly red near the surface, but gradually changes to gray at a depth of three or four feet. It is rather coarse in grain. Feldspar, quartz and hornblende are all present in considerable amount, the feldspar being about half of the whole. This rock is very massive, sometimes extending a hundred feet without a joint. The distance to the railroad is one and a half miles, and to Sauk Rapids, two and a half miles.*

Watab. The southern two miles of this township, to a distance of three miles from the Mississippi, have many outcrops of these crystalline rocks, mainly of syenite, which presents varieties similar to those described in Sauk Rapids.

In the N. W. ¼ of section 35, about one-third of a mile east of Watab station, is the quarry of Talcott, Castle & Co., which was worked by them in 1871 with forty men, drawing the stone six miles to Sauk Rapids, then the end of the railroad. This stone was mostly used for buildings in Chicago, which were destroyed in the great fire of October, 1871. It has been much used for cemetery work, as monuments and bases.†

About a half mile farther east, in the N. E. ¼ of this section 35, is the quarry owned by H. D. Gurney, of Saint Paul, which was opened and considerably worked in 1874 and 1875. From that time it remained idle till 1881, when it was leased to Saulpaugh & Co., by whom it was operated with from fifty to a hundred men, including quarrymen and cutters, the stone being used with that quarried by them in Haven, as before stated, for the Northern Pacific bridge at Bismarck. This exposure includes three distinct varieties of syenite: gray, coarse-grained, which makes up the greater part of the stone quarried; gray, finer-grained; and reddish, with grains of intermediate size. These kinds of rock lie in contact, showing, at least in some portions of the quarry, no gradual transition but an abrupt change at a definite line. A branch track, a mile in length, was laid from the railroad to this quarry in May, 1881.

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* Glacial striæ, seen at a dozen places upon this outcrop, bear quite uniformly S. 50° W., referred to the true meridian, varying rarely to S. 45° W. and S. 55° W.

† Glacial striæ were observed here, bearing S. 15° W.

Extensive ledges of similar rock lie in the S. E. ¼ of section 36.

In the north part of section 34, on land of Joseph Campbell, are also large exposures of syenite of excellent quality, but not yet quarried, except to supply a block, 3 by 1½ by 1 foot in size, polished on one side, which was sent to the Centennial Exposition.

The highest points of the foregoing ledges rise 10 to 20 feet above the average of the adjoining land, or 75 to 100 feet above the Mississippi river, which here is 1,000 feet above the ocean.

Prominent knobs of syenite, mostly reddish and somewhat porphyritic, and often darker and finer-grained than the preceding, sometimes in appearance approaching trap, dikes of which are also present, occur in section 27, between the railroad and the river, a half to one mile north from Watab station. At each side of the river road its elevations are 40 feet above the road and 75 to 90 feet above the river. One of these hills of rough, bald rock (called by Schoolcraft the *Peace rock*) rises in moderate slopes directly from the river's edge about a half mile south from the mouth of Little Rock creek, which was so named because of these ledges.

Prospecting for gold was undertaken here, some fifteen years ago, by Major T. N. Newson, sinking a shaft about ten feet. This is close southeast of the river road, near the center of section 27. It is some 40 feet above the river, with a depression on the east, separating it from a hill about 75 feet high a sixth of a mile east. The vein explored is quartz, one to eight inches thick, dipping 80° S. E. The east wall of this vein is dark and tough trap; and its west wall is a porphyritic, reddish syenite.

A small outcrop, twenty-five or thirty feet across and some 15 feet high, lies in the N. W. ¼ of section 26, a short distance east from the railroad and highway. Beyond this northward the only other rock-exposure known in this county near the Mississippi river is a small and low outcrop in its bank, of a tough, close-grained, hornblendic rock, occurring about a mile farther north, opposite to the northeast corner of section 33, Brockway, Stearns county.

Gilmanton. The only ledges that remain to be described in

Benton county are in its central and northeastern portions, within Gilmanton and Alberta townships.

In the S. E. ¼ of the S. W. ¼ of section 18, Gilmanton, on land of Clement Teller, about twelve rods west of the road, reddish syenite, mostly in large fractured blocks, is exposed at the south side of a small brook, upon an area two or three rods in extent.

About three-fourths of a mile west from this, similar rock is said to outcrop on the east side of the Elk river and in its channel, rising about ten feet above the river and extending six or eight rods.

Alberta. At the end of the portion of the old state road which had its timber cleared off, this being at the middle of the north side of section 20, in the east township of Alberta, the most northeastern of the county, this road crosses an exposure of rock which has an extent of about twenty-five rods from north to south, and is some fifteen rods wide. The quarter-section stake is about five rods east from the north part of this ledge, which extends into the edge of section 17, but lies mainly in the N.E. ¼ of the N.W. ¼ of section 20, on land of Charles A. Gilman, of Saint Cloud. The northeast part of this outcrop contains a dike of trap, dark with whitish spots, seen along a distance of thirty or forty feet and varying from eight to eighteen inches in width. Its course in the east part of its visible extent is S. 60° W.; but it is changed beyond to about due west. South of this dike the rock is a coarse-grained, reddish syenite, composed mostly of feldspar, with perhaps one-fourth part quartz. On the north side of the dike the texture of the rock is very different, though its mineral composition may be nearly the same. Here it is very fine-grained, and is much more traversed by joints, which are usually only one to two feet apart, dividing the rock into rhomboidal masses. These diverse rocks, definitely divided at this dike, appear to form respectively the south and north parts of this outcrop. Other ledges of syenite are reported within a mile northward, in section 17 and the N. E. ¼ of section 18.

About four miles east from the last, in the N.W. ¼ of section 24 of the same township, several exposures of coarse-grained reddish syenite occur in the banks and bed of the West branch of Rum river. In proceeding eastward and down the stream, the first of these outcrops is about twenty-five rods above the new "roll dam," which was rebuilt in 1879. At this upper ledge wings of logs are built on each side to turn the floating logs into the middle of the stream, which here falls three feet, the open space between the wings being thirty feet. The channel here and both banks to a hight one or two feet above the water, along a distance of twenty or thirty feet at each side, are this syenite, but it has no exposures upon the general surface, which is elevated only about five feet above the stream. The crystals of this rock are an eighth to a half of an inch long; about two-thirds of the whole consist of flesh-colored feldspar; about one-sixth is quartz, varying from whitish to smoky and transparent; and the remainder consists of dark particles, mostly hornblende, with rare grains of black mica.

At the "roll dam," twenty-five rods northeast from the last, the same rock is exposed in the south or right bank, and the south half of the dam for about seventy-five feet is founded on it. Its width visible is from ten to twenty-five feet, and its hight above the water below the dam is one to two feet. The fall here is also about three feet. Both these outcrops are massive, often showing no joint for twenty or thirty feet.

At a bend in the river about thirty rods below, being northeast and within sight from the "roll dam," the northern or left bank has an exposure of this coarse syenite, about twenty-five feet long and five to fifteen feet wide, rising one foot above the water; succeeded in the next twenty-five feet east by a very fine-grained, compact, but considerably jointed rock, of deep dull red color, apparently made up mainly of feldspar. Its extent seen was about twenty-five feet long by five to ten feet wide, reaching one foot above the water, which at the time of this examination was probably two feet above its lowest stage.

Within sight from the last and about a dozen rods down the stream, which here flows to the southeast, the coarse-grained massive syenite is again exposed in the northeast or left bank of the river. Its extent is about 50 by 10 to 20 feet, and its hight was two feet above the river, to which this ledge descends perpendicularly, with deep water at its side.

These are the first ledges found by lumbermen in descending this West branch of Rum river.

MILLE LACS COUNTY.

The only remaining exposures of rock on this stream are within three miles southeast from those last described, being in sections 19 and 29, of T. 38. R. 27, in Mille Lacs county.

T. 38, R. 27. At Stony Brook dam, situated on the West branch near the center of section 19, fifteen and a half miles in a straight line northwest from Princeton, and about three-fourths of a mile east-southeast from Brown's lumber camp and the mouth of Stony brook, the excavation at the north end of the dam shows a small exposure, about twenty-five feet across, of the same coarse, reddish syenite as occurs at and near the "roll dam." This has a smooth surface, nearly free from joints. Its hight is only one or two feet above the river.

In section 29, this rock occurs at many places in the banks and channel of the river along a distance of more than a half mile. These ledges begin about a mile southeast from the Stony Brook dam. The following notes describe them in the order that they were found in following down the river.

The first outcrop noted, perhaps below some which were not seen by me, occurs on the west or right side of the stream; and is about fifty feet square, reaching from the bank nearly across the river, which through this section varies from two to four rods in width, and is from three to six feet deep. It here has a fall of one foot, and the rock rises one to two feet above it. This is a massive syenite, coarse-grained and reddish, indistinguishable from that at the "roll dam."

At about twenty-five rods and again at thirty-five rods from the preceding, down the stream, which here flows south, ledges of the same rock are exposed in the left bank of the river, at each place having a length of about twenty-five feet and a hight of three or four feet.

Some twenty rods south from the last, where the river turns east, its right bank just below the bend has an outcrop of the same rock, extending four rods and rising five or six feet above the water. A part of this ledge is divided by east-to-west joints, one to two or three feet apart; but the higher southern part, like most of these outcrops, is massive, rarely intersected by joints.

About forty rods below the last, southeasterly, the river flows, falling about one and a half feet, over ledges of the same rock, in part divided by east-to-west joints. In the east or left bank these outcrops rise six feet above the water. Low exposures of this rock continue in the left bank about eight rods south, and after an interval of four or five rods again appear in the left bank for about fifty feet, rising seven feet above the river.

Twenty rods down stream, south-southwest from the last, ledges of the same rock re-appear in the left bank, and reach ten or twelve rods west-southwest, down the stream, rising five to eight feet above it.

Some ten rods below, westerly from the last, it is again exposed in the left bank at a small island.

From twenty to forty rods farther down the stream, westerly to where it turns south, then flowing south and southeast, there are frequent outcrops of the same rock at each side of the stream, above which these ledges rise from one to five feet. No exposures of rock are known below this on the West branch of Rum river; and none were found elsewhere in this region, except as described in the banks and channel of this stream. The descent of the West branch in its course of about three and a half miles from the "roll dam" to the lowest of these ledges, is estimated to be about 25 feet.*

The numerous rock exposures seen along these three miles are remarkably alike in lithological character, being a coarse, flesh-colored or reddish syenite, with occasional particles of mica. It is well adapted to be quarried for ordinary masonry and building purposes; but it has not yet been worked because settlements have not extended into this district.

On the main Rum river, generally denominated the "East branch," the drift and topographic features are mainly like those described on the West branch. Its only exposures of the bed-rock are about thirty miles, in a direct line, north of Princeton, being six to ten miles south of Mille Lacs. Low outcrops of small area, seen in descending this stream at Rum river falls, in the S. E. ¼ of section 18, T. 41, R. 26, a half mile above the mouth of Bradbury brook, and at other points a few miles below these falls, are described by Norwood as syenite, hornblende rock, gneiss, granite, and greenstone. Another outcrop is reported at the "ledge dam", on the south fork of the Bradbury brook, three or four miles above its junction with the East branch.

KANABEC COUNTY.

The glacial drift and surface features of this county are much like those of Benton and Mille Lacs counties. The ledges of crystalline rocks examined in Kanabec county are on Ann river in the vicinity of the Ann Lake dam; and on Snake river at and near its Upper and Lower falls, which are situated in T. 42, R. 23, respectively one and a half and two and a half miles south from the north line of the county.

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* The adjoining land is moderately undulating till, varying from a few feet to thirty or forty feet above the river, well wooded, but with little pine. Its soil promises well for agriculture. The pineries which still remain upon the head-waters of the West branch begin several miles farther northwest, beyond the west line of Mille Lacs county.

The Ann Lake dam, having eight feet head, and raising the level of Ann lake about five feet as a reservoir for log-driving, is situated two miles below the mouth of this lake in the east edge of the S.E. ¼ of section 30, T. 40, R. 24. About ten rods south from the gate of this dam is a rock exposure six or eight rods in length and width; but the rock does not appear here in the channel or bank of the river. Its next outcrop is some fifty rods down stream, southeast, being in the S. W. ¼ of section 29, at the southwest end of the "roll dam," extending ten or twelve rods beside the river, and about six rods in width. These outcrops rise five to ten feet above the river. Again, about thirty rods down stream, south from the last, and in the same quarter-section, or in the north edge of section 32, at a "breakwater," a ledge two or three rods in extent is found a few rods southwest from the stream, and six or eight feet above it, but not rising above the general surface. All these outcrops are on the southwest side of the river. They are all alike, being a light gray, rather fine-grained granite, somewhat decomposed next to the surface, so that it breaks with a crumbling fracture. In excavation by quarrying it would probably be found adapted for building purposes, with fair durability. Throughout these exposures it has a very uniform texture, with no noteworthy variation and no included veins. It is cut by joints from two to ten or fifteen feet apart.

Similar rock-outcrops are reported on the Little Ann river two to four miles west and northwest from the foregoing, in section 26, T. 40, R. 25, and probably in the S.E. ¼ of section 14, occurring at several places in the channel and banks of the stream; but not at its dam, which is in or near the S.W. ¼ of section 11.

Vicinity of the Upper and Lower falls of Snake river. The trip to these falls was from Kettle River station southwesterly by the north side of Pine lakes to McClure's lumber camp, situated on the west side of Cowan's brook, in the N.W. ¼ of the N.W ¼ of section 35, T. 43, R. 23. The logging-road which follows down Cowan's brook, at about two-thirds of a mile south from this camp, in the S.E. ¼ of section 34 of this township, a little north of the line between Aitkin and Kanabec counties, goes over a spot which is strown with many blocks of a fine-grained, gray granite, containing black mica. This is doubtless the bed-rock here, at a little depth below the surface.

About a mile farther southwest, some forty rods below McClure's landing and a quarter of a mile above the mouth of Cowan's brook, probably in the N. W. ¼ of the S. E. ¼ of section 4, T. 42, R. 23, a medium-grained gray granite, with a little black mica, outcrops in both banks of Snake river and forms a short rapid. These ledges on the left shore extend about forty feet, rising only one or two feet above the water; but on the right bank, a short distance below, they reach a hundred feet or more, having a hight six or eight feet above the river.

An eighth of a mile farther south, a finely-laminated, dark gray mica schist forms outcrops two or three rods long and six feet above the river, in each bank. This has a northerly dip, varying from 5° to 15°. It is traversed irregularly by veins, from one inch to one foot, and on the west bank from one to four feet in width, composed of coarsely crystalline light gray granite, which has crystals of white mica an inch long.

The head of the Upper falls of Snake river is about two-thirds of a mile south from the mouth of Cowan's brook, in the north part of section 9. The first noteworthy ledges beyond those last described are about twenty-five rods below, west-southwest from, the head of these rapids. Here the river flows ten rods westerly between walls of granite only thirty to forty feet apart, with a descent of two or three feet. This is called the "jaws of the Upper falls." The rock here is mainly gray granite, in part fine-grained, but more generally of medium or very coarse grain. It also encloses many veins and masses, from one to eight feet in width, of exceedingly coarsely crystalline granite, with flesh-colored feldspar, or of such feldspar alone; and these in some portions make up nearly half of the rock exposed. Veins of white quartz, up to one foot in diameter, are also present. In some parts this rock has a distinct but much contorted lamination, being thus changed to gneiss and mica schist. Joints, vertical and nearly horizontal or oblique, divide these ledges into blocks from one to five or ten feet in dimension. Because of this structure the channel eroded by the river is enclosed by zigzag, nearly vertical walls, which are 10 to 15 feet high. The same formation, with great lithological variety, reaches twenty to forty rods from the river on each side, and rises 25 to 40 feet above it; and extends with nearly continuous exposures a third of a mile or more along the river south and southwest to the foot of these falls, which is near the mouth of Hay creek, a tributary from the west. Similar rocks, including very coarse granite, occur also at the "roll dam" and at the "gate dam" on this creek, situated respectively three-fourths of a mile and one mile above its mouth. On the east side of Snake river, about thirty rods south of the "jaws of the Upper falls," the rock for several rods is darkish gray gneiss, dipping 30° to 40° S. Some twenty-five rods farther south, it is a medium-grained, light gray granite, containing both black and white mica, the former most abundant; this is a little northeast from a small island in the river, and is about an eighth of a mile north from the foot of these rapids of the Upper falls. This granite by its color and texture promises to be a handsome and easily wrought building-stone. It has more extensive exposures one mile farther southeast along the Lower falls.

A quarter of a mile south from the last, an exposure of dark granite or gneiss extends about ten rods along the southwest bank of the river. It is divided by a conspicuous system of joints which dip about 45° southerly. No outcrop occurs here on the northeast or left bank.

About forty rods southerly from the last, an outcrop of medium-grained. flesh-colored granite forms a small rapid. It occurs in the channel and has small and low exposures on each shore.

The head of the Lower falls is about an eighth of a mile south from the last, being where the river bends eastward in the north part of section 16. Between the Upper and Lower falls, as also above and below them, the land is slightly or moderately undulating till. 5 to 25 feet above the river, which is from three to eight rods wide.

The Lower falls of Snake river lie in the E. ½ of the N. E. ¼ of section 16, T. 42, R. 23, and in the N. W. ¼ of section 15, reaching about three-fourths of a mile, in which the river flows east and east-northeast, falling some twenty feet in this distance by a succession of rapids, but having no great fall at any one place. Along this distance the river is bordered by abundant granitic ledges, roughly ragged, jointed and broken, but rarely vertical, varying from 10 to 30 feet in hight. These rock-outcrops reach twenty to forty rods or more from the river upon each side, and form several east-to-west ridges, an eighth to a fourth of a mile long, rising 25 to 40 feet above the river. They rise most steeply in the south or right bank of the river, owing to a general system of joints which dips about 60° southerly. Throughout this area the principal rock is a medium-grained, light gray granite, desirable for quarrying. like that found fifty or sixty rods south from the "jaws" of the Upper falls. This rock is usually divided by joints at intervals of five to ten feet; and it includes veins and masses of gneiss, mica schist, very coarse flesh-colored granite, and of feldspar; but these are far less frequent than at the Upper falls.

The place of the river's channel across this formation may have been determined by a stratum of dark, partly crumbling mica schist, which seems to be included in the granite. It is seen in each bank of the river along the central and east part of the Lower falls for a distance of a quarter of a mile; its best exposure is in the east part of this distance, where its strike is E. or N. 80° E., coinciding with the course of the river. The dip of this bed is about 75° S., and its thickness appears to be about one hundred feet. This schist encloses occasional seams of white quartz up to three and sometimes six inches in thickness, coinciding with the foliation.

Potsdam sandstone. Below these falls, the only remaining outcrops of rock on the Snake river in Kanabec county are sandstones, in part conglomeritic, which are believed to belong to the Potsdam period. No fossils were found in them. Their first exposure is about one and a half miles southeast from the Lower falls, being at O'Brien's camp, in the north part of section 23, T. 42, R. 23, where the river turns from a west to a south course. Here a dark red sandstone, divided throughout in layers from a quarter of an inch to two inches thick, is exposed in the river's west or right bank for twenty-five rods at and south from its sharp bend, seen at several places to a hight two to six feet above the water. Its best exposure is just below this, reaching twenty rods south-southeast, in the east bank of the river, forming a wall three to eight feet high. The general surface eastward is only about ten feet above the river, but it has no rock-outcrops. All this sandstone is divided in thin layers, which in many places show oblique bedding, varying five to ten degrees from the planes of stratification, which throughout dip 10° to 20° E. N. E. It is further divided by irregular vertical joints, into pieces only six to eighteen inches long. At several places this rock includes many gravel stones, up to a half or two-thirds of an inch in diameter; these are mostly quartzose; and one of soft, red pipestone was found.

In the south part of the next township (41 of range 23), Shumard reports an exposure, twenty-five feet in thickness, of red sandstone and alternating ash-colored clays.

At Knife River bridge, which crosses Snake river in the N.E.¼ of section 3, T. 39, R. 23, about three miles east-southeast from the exposures of granite near Ann Lake dam, this sandstone is exposed for a length of about 300 feet and a width of 75 feet, on the southwest or right shore of the river. It has mainly a sloping surface, rising from the water's edge to about five feet above it; but at its east end for nearly 100 feet it has a vertical outcrop, rising in its highest part seven to ten feet above the river. This rock is a coarse-grained sandstone, of gray and iron-rusted color, divided by weathering into layers from a quarter of an inch to one and a half inches thick. Mainly it has an eastward dip, which appears to be slightly variable in amount and direction. At one place, the steepest noticed, the dip is 15° E. S. E. In some layers this rock has a deep dull red color for three or four inches vertically through a length of six to ten feet. This entire outcrop encloses pebbles here and there, mostly quartz or quartzose, of all sizes up to three and a half inches in diameter, but they are nowhere so plentiful as to give the rock the character of an ordinary conglomerate.

The foregoing comprise all the exposures of rock known in Kanabec county.

PINE COUNTY.

Crystalline schists. The most northern outcrops of rock learned of in this county, are in the east part of its northwestern township (T. 45, R. 21), where schist, conspicuously veined with white quartz, is reported as forming knobs 40 to 75 feet high and extending two miles or more in a course from southwest to northeast. Toward the southwest this formation appears in Kanabec county at the Upper and Lower falls of Snake river, and in Aitkin county at the dam on this river, situated in the S. W. ¼ of section 21, T. 43, R. 23, a few miles above these falls, and again in the north part of the same township, a few miles above this dam and a half to one mile below the fork of Snake river. Northward, it is exposed in Carlton county at the mouth of Split Rock river, tributary to the Kettle river from the west in section 32, T. 46, R. 20, and six miles farther east in the vicinity of Moose Lake station, which is two and a half miles north of Pine county line.

The last of these localities is the only one which I have examined. The southern limit of the rock exposures here is near Fox & Wisdom's steam saw-mill, a mile south of the depot. Thence northward the rock lies for two thirds of a mile partly on each side of the railroad. From the village its area reaches west a half mile, and continues about a mile farther north at some distance west of the railroad, rising in moderate slopes 25 to 40 feet above the railroad and lake. It is mainly a darkish gray hydromica schist, considerably contorted, with variable dip, its lamination being sometimes horizontal, but usually dipping 15° to 25° S. or S. 15° E. Quartz veins, mostly from an eighth of an inch to three inches, and rarely from one to four feet, in thickness, are frequent. A vein, or dike, only about an inch in thickness, of dark, columnar trap, was found half a mile west of the station. Part of this rock, especially northward, is very fine-grained and compact, resembling quartzyte, and having a dark slate color. This usually shows no distinct lamination and has no slaty cleavage, but it is much divided by joints into rhombic masses one to two feet long. Other portions of this outcrop are traversed by joints from one to ten feet apart; their principal system is nearly vertical and runs from north to south or S. 10° E.; fewer joints cross these, bearing southwest or nearly from east to west. Through all the extent of this rock, it is very much broken upon the surface into a multitude of angular blocks from one to ten feet in dimension, so that on a large part of its area considerable search is needed to find it in undisturbed position.

Sandstone. An area of sandstone, shown on the map as belonging to the Potsdam period, but which upon further consideration seems to be more probably referable to the lower part of the St. Croix formation, is found on the Kettle river in Pine county from about three miles north of Kettle River station southward along a distance of nearly twenty-five miles. The most northern outcrop of this sandstone is reported in a bluff at the west side of Kettle river, near the southwest corner of section 10, T. 44, R. 20. Its next exposure is some two miles south of Kettle River station, in the S. E. ¼ of section 3, T. 43, R. 20, where it rises about ten feet in the northeast bank of Kettle river. Here and frequently onward to the mouth of the Grindstone river, this rock forms the river-bed and produces rapids. Where the old Government road crossed the Kettle river, a mile below this reef, the sandstone rises 10 to 15 feet in its right bank. Through the next fifteen miles, to about a mile below the Grindstone river, a deep channel has been eroded by the Kettle river in this formation, which is seen almost uninterruptedly along both sides, often making a wall 5 to 20 feet high at the water's edge, and ascending within a distance of an eighth to a third of a mile from the stream in bluffs 75 to 100 feet high, their upper half being usually vertical cliffs. Occasionally tower-like masses are left isolated beyond the line of the bluff, the edge of which, also, is in many places broken into immense blocks, some of which have been already dislodged, while others are separated by yawning chasms, from one to six feet or more across and ten to twenty-five feet deep, ending in cavernous clefts and recesses below. This whole gorge fifteen miles long, like that of the Mississippi eight miles long from Fort Snelling to Minneapolis, has probably been cut by the river since the ice age. The drift in the vicinity of Kettle river is thin, and the sandstone reaches from the base to the top of its bluffs, which rise to the general level of the adjoining country. On tributary ravines and creeks this rock often forms picturesque cliffs to a distance of a half mile or one mile above their mouths; but farther back the water-courses are usually of small depth, not cutting through the moderately undulating drift-sheet, and only few exposures of the underlying sandstone are known. This sandstone is mostly fine but partly coarse in grain, rarely conglomeritic, seldom very hard and sometimes easily crumbling, usually gray or buff in color, and in stratification nearly level or inclined only a few degrees.

At the Upper falls (or Dalles) of the Kettle river, situated four miles east of Miller station, in the south edge of T. 43, R. 20, the river flows southwest in rapids about a half mile long, closely bordered upon each side by ragged cliffs of this rock, 50 to 100 feet high. About a sixth of a mile below the foot of this rapid, a little stream joins the river from the west, having a pretty waterfall, 13 feet high, a dozen rods above its mouth. Here the sandstone rises in successive steps of ten to twenty feet each, often overhanging, to a hight about 75 feet above the river. It is fine-grained, slightly reddish or yellowish brown, and bedded in layers from six inches to three feet thick. These layers are nearly level, but resemble many modern sand deposits in being often obliquely laminated, their dips varying from 10° to 45°, mostly southward. On the small tributary mentioned, this sandstone forms a picturesque ravine extending about a mile northwestward from the river. At a basin near the head of this gorge, it dips about three feet in a hundred feet, or approximately two degrees, to the southeast.

The Lower falls of Kettle river are in the south part of section 15, T. 42, R. 20, being a short distance below a very large chalybeate spring which issues at the foot of the eastern bluff, and about a mile south of a tributary whose loudly dashing descent down this bluff is hidden from view by its heavy woods. In the three miles between these falls of Kettle river, it flows with a gentle current.

At the Lower falls the sandstone forms both shores and the river's channel, in the middle of which it rises in an island with vertical walls and nearly level top, about a hundred feet across, and 10 or 12 feet above the water at the head of this fall, West of the island is a perpendicular descent of four or five feet, with rapids which fall two feet within a few rods above, and as much more within twenty rods below, making a total of about eight feet. East and south of the island the descent is a nearly continuous rapid, broken by vertical falls of only about one foot. The sandstone here is fine-grained and somewhat friable ; its color is yellowish gray ; and its stratification, in beds from six inches to three feet thick, has a slight dip to the south, varying from one to four feet in a hundred feet.

In sections 16 and 17 of this township, one and two miles west from the Lower falls. exposures of this sandstone occur on the south side of a small brook, 10 to 20 feet above it, and at the general level of the surrounding drift-covered country. In the west part of section 17, it is hard and fine-grained, and was quarried several years ago to test its value as a grindstone.

At Hinckley, on the Grindstone river four miles above its mouth, this sandstone has been quarried by the Saint Paul & Duluth railroad company. The section thus exposed is six to nine feet high and about 250 feet long from north to south, lying close north of the river and east of the railroad. The top of this ledge is twelve feet above the river, and is overlain by three to eight feet of very coarse gravel, nearly like till. This rock is a hard and compact, medium-grained sandstone of light buff color, nearly level in stratification. Its beds vary from one inch to two feet in thickness, and in some portions they show oblique lamination, which is inclined 10° to 15° northward. Quarrying was begun here in 1878, since which time this stone has been largely used for bridge-masonry.*

This rock is reported to occur frequently in large blocks, and perhaps has low outcrops in place, along the north branch of Grindstone river, and about Grindstone lake. Below Hinckley this river has cut its channel about fifty feet deep in drift deposits, and no exposures of rock in place were found. From its mouth north along Kettle river, the sandstone occurs in the bluffs, has extensive exposures where the old Government road crosses Deer creek, and forms Pine Island rapids, about four miles south of the Lower falls. A half mile to one mile below the mouth of Grindstone river, ledges of sandstone, nearly level in bedding, light gray in color, and often containing fine gravel up to an eighth or a fourth of an inch in diameter, occur a short distance west of Kettle river, having a hight 20 to 40 feet above it. On the east side of Kettle river here and probably at many places through several miles farther southeast, to the head of the rapids which reach thence to its mouth, a line of broken sandstone bluffs, declining southward from 50 to 25 feet in hight, is found a fourth to a third of a mile from the river.

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* Glacial striæ, seen here at several places, run S. and S. 5° W., by the true meridian.

The next observation of sandstone southeastward is by Owen, who reports it on the southeast side of the St. Croix river a little below the head of the Kettle River rapids. It is red, much shattered, and is underlain by a conglomerate. Near by are numerous outcrops of cupriferous eruptive rock.*

Copper-bearing trap. My examination of the trappean rocks and their beds of tufaceous conglomerate, includes the three miles of Kettle river next to its mouth, and also two ledges seen in its west bank about a mile below the mouth of Grindstone river; outcrops of these rocks on the St. Croix below Kettle river; and their belt crossed by the Snake river in the three miles next east from Chengwatana. Numerous other outcrops of these rocks are reported by Owen and Shumard along the upper three miles of the Kettle River rapids of St. Croix river, and on Kettle river in the distance of about ten miles between its portions here described.

In northern Michigan this trappean formation is rich in copper, which is there extensively and profitably mined. Its continuation westward in northern Wisconsin, on the north shore of lake Superior, and in Pine and Chisago counties, contains generally traces of copper ores, often green in color, most abundant in seams and veins and in decomposing portions of the rock, and rarely particles or even considerable masses of native copper are found in it; but no profitable mining has been yet found upon its areas in Minnesota.

The most northern exposures of trap on the Kettle river are in T. 41, R. 20. The ledges seen by me in this township are situated about twelve rods apart, in the southwest bank, a mile below Grindstone river, being near the northeast corner of section 27. The southern of these outcrops is about seventy-five feet long and rises three to five feet above the river; and the northern has about half this length and hight. Both are trap, somewhat decomposed, of dull red or dark rusty color, partly amygdaloidal, and much divided by irregular joints and cracks into fragments from one to twelve inches long.

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*East and northeast from the Kettle River rapids on the St. Croix, no outcrops of the bed-rock have been learned of in Pine county, by much inquiry addressed to surveyors and lumbermen who are familiar with this part of the St. Croix and with its tributaries, Bear, Sand, Crooked and Tamarack creeks. The region consists chiefly of till, rising by gentle slopes to hights 25 to 50 feet above the streams, and is well-timbered with hard wood and much red and white pine.

Kettle river from the east line of T. 40, R. 20, to its mouth, a distance of about six miles, consists of a succession of rapids, alternating with portions that have a gentle current. My notes cover the lower half of this extent, beginning at the elbow where the river bends from a south to an east course, in the southern part of section 32, T. 40, R. 19. At this bend and eastward an outcrop of trap extends about twenty-five rods in the southwest bank, rising perpendicularly at each end about ten feet above the water, but in its middle portion having a hight of only two or three feet. Much of this rock is the usual dark and tough trap; it is minutely pitted upon weathered surfaces; and is often divided by joints into rhombic masses from three inches to two feet long. Some portions are amygdaloidal, holding green bunches of chlorite and epidote, apparently because of decomposition and metamorphism. Veins of calcite in the form of satin spar, from a sixteenth of an inch to one inch in thickness, and sometimes ten feet or more in length, occur in many of the joints, vertical, oblique and horizontal, in the decomposing parts of these ledges.

About a half mile farther east, near the center of the S. W. ¼ of the S. W. ¼ of section 33, trap is exposed in the northeast bank of the river, having an extent of a few rods and rising about five feet above low water. This is known as the "copper claim," from prospecting shafts sunk here by Mr. N. C. D. Taylor, in 1865.

Here the river turns south and holds this course to its mouth. A little below the "copper claim," in the north part of the N.W. ¼ of section 4, T. 39, R. 19, its east shore is trap, declining in hight from ten to two feet along its extent of about forty rods from north to south, overlain by a bluff of red till, 25 to 30 feet high.

Next this rock outcrops at many places on the west shore of the river along a distance of nearly a quarter of a mile, at the middle part of the west side of this section 4. It rises one to five feet above the river. Generally it is somewhat decomposed, being often oölitic and nodular, with frequent green stains. Small portions of it are tufaceous conglomerate. It is much divided by joints from two to eighteen inches apart, varying in inclination from 45° to vertical. Their most conspicuous system of parallel planes has an east-northeast strike. All this lower part of Kettle river has low shores or bluffs only 25 to 40 feet high, and the adjoining country is moderately undulating drift.

The mouth of Kettle river is divided by two small islands into three channels. Opposite to its mouth and for three miles above and one mile below, the St. Croix river is turned in two channels, by three long islands, which together are called the "Big island." The eastern, large channel is the state boundary; and the western is commonly called the "slough." In both the river has a strong current, with numerous rapids, the largest fall being two or three feet in a few rods at a reef of trap which crosses both channels near the middle of the upper island. This extent of about four miles on the St. Croix river is named Kettle River rapids. The highest outcrops of trap in this distance rise only 10 to 20 feet above the water.

Descending the St. Croix from the mouth of Kettle river, the first rock was found at the south end of the "Big island." Here very compact and hard, dark trap has an extent of about twelve rods from east to west and a hight of five feet.

About a mile farther south, near the south line of section 20, trappean rock, nearly like the last, divided by joints one to four feet apart, forms the west shore of the river for ten or twelve rods, reaching five to ten feet above the water. It again has an exposure of similar extent in the same bank some fifty rods farther southwest, being in the N. W. ¼ of section 29, T. 39, R. 19, about twenty-five rods below the north end of the "Thousand islands," where another ledge of this rock occurs.

The most southern outcrop of trap on this part of the St. Croix is found on the Wisconsin side about a half mile south from the last. Its visible length is only about ten feet, and its hight six feet. Forty rods farther south, opposite to the last of the "Thousand islands," is the most northern point on the St. Croix river at which I observed the St. Croix sandstone, which thence is frequently exposed along a distance of nearly twenty miles to the south.

The southwestward continuation of this area of copper-bearing trap is found on the Snake river at Chengwatana and for three miles east. Farther southwest the bed-rocks are universally concealed by the drift, as also along this river above to its sandstone outcrops in Kanabec county. Chengwatana dam, in Snake river at the mouth of Cross lake, is built on ledges of trap and conglomerate, which here and in their other outcrops, seen at several places within the next mile, and two and three miles below, rise five to fifteen feet above the river. Their exposures are restricted to its channel and banks, and the adjoining region is gently undulating or nearly level drift, 20 to 50 feet higher. The greater part of this belt consists of dark, hard and compact. fine-grained, tough trap. Other portions show various stages of decomposion and metamorphism, and bear amygdaloidal masses of chlorite, epidote, and other minerals, and veins of calcite.

Search for copper in these rocks was made several years ago by Mr. Adolph Munch, about three-fourths of a mile below Chengwatana, by several shafts of little depth, upon each side of the river and in its channel. During 1880 and 1881, further prospecting for copper was entered upon by the Chengwatana Mining Company, represented by Mr. J. Bennett Smith, who has sunk shafts at three points on the north side of the river, three-fourths of a mile, one mile, and one and a half miles east from Chengwatana. The first of these is in a dark red, ochery conglomerate, which contains many water-worn pebbles, mostly from a half inch to two inches in diameter, apparently derived from the trap, but altered and decomposed. Mr. Smith states that this bed of conglomerate is thirty feet thick, with strike N. 15° E. and dip 70° S. 75° E.. He reports another bed of conglomerate, very coarse, fifty feet thick, a half mile east of Chengwatana, and a third, about twenty-five feet thick, at the mouth of Cross lake, close above the dam.

At the time of my observation here, October 17, 1881, Mr. Smith was at work at the shaft a mile east of Chengwatana, in an amygdaloidal bed, fifty feet in width, dipping 70° S. 75° E. This had been excavated to a depth of 45 feet, below which farther exploration has been since made with a diamond drill. The hanging wall is very hard, fine grained black trap; next to this the first five or six feet are soft, decomposed amygdaloid, holding many chloritic bunches, from a quarter of an inch to two inches in diameter; the central and lower portions are somewhat harder, and contain much calcareous spar in crystalline masses and in banded veins, besides a large variety of other minerals; the foot wall is compact and hard, somewhat amygdaloidal trap. All these beds of conglomerate and amygdaloid have approximately the same strike and dip. Prof. T. C. Chamberlin reports the strike of these strata on the Snake river to be N. 10° to 15° E., and their dip 50° to 60° south of east. The formation was made up by successive overflows of molten rock, which cooled to form hard, finely crystalline trap beneath, but often in the upper part became scoriaceous and amygdaloidal; and between these eruptions, during intervals of repose, layers of tufaceous conglomerate sometimes were accumulated.

St. Croix sandstone. East of this trappean belt, the next exposures of rock on the Snake river are near its mouth. Its northeast bluff in the S. ½ of the N. E. ¼ of section 36, T. 39, R. 20, about a mile above its junction with the St. Croix, has an outcrop of gray and white sandstone, which extends about twenty rods, rising ten to fifteen feet above the river. This is a levelly stratified, somewhat friable rock, in layers from three inches to one and a half feet thick, mostly intersected by nearly vertical joints two to five feet apart. It was quarried a few years ago by Mr. T. R. Rice and others for the foundation of the court house at Grantsburgh, seven miles east in Burnett county, Wisconsin. Two or three feet above the line of low water, this sandstone includes a layer of conglomerate, one foot thick, composed of gravel and pebbles up to an inch in diameter, mostly white quartz, all much water-worn.

Half a mile farther east, where the river turns from a north to an east course, about a hundred rods above its mouth, another outcrop of this formation was seen along an extent of about fifty feet and to a hight of six feet. The lowest beds here, about four feet in hight, are whitish and yellowish, somewhat pebbly sandstone, in layers from a quarter of an inch to six inches thick; in part rhomboidally divided by many joints; levelly stratified at the east, but at the middle of the exposure dipping 1° to 10° southwesterly and disappearing. The overlying beds are soft, finely laminated shales, red, green and yellow. Their red layers are from an inch to one and a half feet thick, rarely enclosing yellow laminæ; and the green vary from one to four inches in thickness, including yellow layers up to three-fourths of an inch thick.

On the St. Croix river similar beds were noted in its southeast bank, opposite to the most southern of the "Thousand islands," a mile above the mouth of Snake river. Here whitish and slightly yellowish, soft sandstone was exposed along a distance of forty feet, and to a hight of ten feet above the water, in the base of a high bluff. It is bedded in horizontal layers, which are obliquely laminated, and vary from three to twelve inches in thickness, sometimes divided by layers a quarter of an inch to one inch thick of greenish sand. Under this sandstone, the three feet next to the water consisted of soft shales, the upper one and a half to two feet being dark red, finely laminated, with occasional thin streaks of green or yellow; then, about a foot of light green color, with little yellow and red, underlain at the water's edge by a second red stratum. An eighth of a mile farther south, this eastern bluff, about 90 feet high, exposes a vertical thickness of fifteen feet of nearly white, level sandstone, 35 to 50 feet above the river.

A quarter of a mile below the mouth of Snake river, this sandstone occurs, thinly covered with alluvium, a few rods north of Mr. T. R. Rice's house, on the Wisconsin side, being eight or ten feet above the St. Croix.

The Horse-race rapids, not broken by boulders, are a half mile long, lying mostly in the N. E. ¼ of section 7, T. 38, R. 19. The next half mile of the St. Croix, two to two and a half miles below Snake river, is bordered on the Wisconsin side by perpendicular cliffs of white, coarse-grained, soft and crumbling, horizontally bedded sandstone, about 50 feet high.

CHISAGO COUNTY.

St. Croix sandstone. At Baltimore rapids, on the St. Croix river a little below the northeast corner of Chisago county, in the N. E. ¼ of section 4, T. 37, R. 20, this St. Croix sandstone forms a bluff on the Minnesota side, 50 feet high and a quarter of a mile long.

In the southwest quarter of this section, about a half mile below the last, ledges of sandstone, light gray in color, coarse-grained and rarely including white quartz pebbles up to three-fourths of an inch in diameter, friable, and level in stratification, occur at two or three points within an eighth of a mile on the Wisconsin side, rising 10 to 15 feet above the river.

An eighth of a mile farther southwest, the same stone rises on the Minnesota side in a vertical and overhanging cliff twenty feet high and about fifteen rods long, known as the "big rock." It is the last prominent ledge seen in descending the St. Croix before coming to the high outcrops of trap in the southeast part of this county.

Only two localities of rock-exposures are known in the intervening distance of twenty-five miles, both being sandstone with the characters already described. These are at a fall of about ten feet on Rush creek a half mile above its mouth, and at Yellow Pine rapids in the St. Croix, on the east side of section 18, T. 36. R. 20, where low ledges of this stone are seen in its channel and banks along a distance of nearly a mile.

This sandstone and its included shales are exposed at many places in the bluffs of the St. Croix river at St. Croix Falls and Taylor's Falls, and through Franconia, the southeastern township of this county. In stratification all these beds are nearly horizontal and show no indications of any disturbance or metamorphism since their deposition. They reach from the level of the river to hights 50 to 100 feet above it, and are overlain by the glacial drift. Where they lie in contact with the steep, vertical, or overhanging sides of the trap rocks which here form the Dalles of the St. Croix, they are often changed to conglomerate, containing many fragments that fell from these cliffs, which had already been deeply eroded before the St. Croix sandstone and shales were deposited. These sediments contain multitudes of shells of *Lingula* and *Orbicula* species, and trilobites occur rarely; but no fossils have been found in any of the strata which lie farther north, described in the foregoing pages.

At St. Croix Falls, in Wisconsin, fossiliferous shales, mostly gray, but in some beds green, often bearing films of iron rust in their crevices and joints, and including thin layers of sandstone, are seen from the river's shore to a hight of 50 feet. These shales also form the Minnesota bank of the river, about 30 feet high, between twenty and forty rods north of the Taylor's Falls bridge.

In the two miles between the Upper and Lower Dalles, the formation is a whitish or yellowish gray, soft, often friable, sandstone, exposed in the bluffs west of the St. Croix to the hight of about 100 feet. Near Taylor's Falls it has been somewhat quarried for use as a building stone.

At Franconia, close below the Lower Dalles, it reaches in the bluff of Lawrence creek at Paul Munch's mill to a hight of about 70 feet above the creek or 90 feet above the St. Croix. Its upper 40 feet are a gray, thick-bedded sandstone, which is rather friable, but hardens after quarrying; it supplied the stone of which this mill was built, fifteen years ago. The next 12 feet are finely laminated, slightly sandy shale, soft, but hardening by exposure, green and iron-rusted, superficially ash-colored; and the 20 feet at the base are dark-greenish sandstone, soft and incoherent at the weathered surface.

The ravine of Lawrence creek for a half mile above this mill is enclosed by cliffs of this sandstone, mostly like the upper part of the foregoing section, rising 50 to 75 feet above the creek, and in their highest portion about 125 feet above the St. Croix. Myriads of *Lingulæ*, difficult for preservation, excepting as fragments, because of the crumbling character of the stone, occur in these beds on each side of the creek, an eighth to a fourth of a mile north from the mill, at about the hight of the flume. The dip here is one to one and a half feet in a hundred, or about three-fourths of a degree, southward.

Travertine, a limestone deposited from the water of springs, occurs in large deposits on the face of the bluffs of this sandstone, and has been extensively burned for lime, a quarter to a half of a mile south of Munch's mill in Franconia, and near Osceola, a few miles farther south on the Wisconsin side. At the latter place, nearly opposite to the southeast corner of Chisago county, the St. Croix sandstone is thinly capped by the Lower Magnesian limestone, which thence southward overlies this formation along the St. Croix and Mississippi rivers.

Copper-bearing trap. The remarkable outcrops of trappean rocks forming the picturesque and grand Dalles of the St. Croix, are more than thirty miles south of the areas of these rocks in Pine county. About a mile above Taylor's Falls and close above St. Croix Falls, trap occurs in the channel and on both sides of the river, its highest portions having an elevation of 50 feet. At Taylor's Falls the St. Croix enters its Upper Dalles, where for three-fourths of a mile it is walled on both sides by bold, often vertical, ragged cliffs, 75 to 150 feet high, of tough, nearly black, massive trap. This gorge and the similar one of the Lower Dalles, about a quarter of a mile long, close above Franconia, have been cut in this rock by the river, the excavation being aided by nearly vertical joints. At Taylor's Falls landing these bear N .60° E. and N. 45° W.

East of the road to this landing, the ledges of very hard trap, 25 to 60 feet above the river, are surprisingly water-worn, with many pot-holes of all sizes from those only one and a half feet in diameter and six feet or more in depth, almost perfectly cylindrical, to the caldron, situated six rods northeast of the landing, twenty feet in diameter, circular, and ten feet deep with perpendicular sides to the surface of the water which partly fills it. Into one of these wells, eight feet in diameter, a pole has been thrust down thirty feet.

The origin of this formation, as in Pine county and in the lake Superior region, appears to have been by overflows of molten rock poured out from fissures of the earth's crust; but only inconsiderable portions of the beds exposed here are amygdaloidal, and this structure is rarely seen to be characteristic of distinct layers. A general system of jointage planes, which is quite noticeable in these outcrops, dipping about 15° W. by S. is regarded by Professor Chamberlin as parallel with the planes of bedding of the trappean overflows, at first nearly level, but subsequently disturbed and tilted. He further remarks that these rocks and those of Pine county are bent in a synclinal, like their broader continuation northward, which forms the depression of lake Superior; and that this continuously synclinal belt is slightly curved upward, saddle-like, between the lake and its southern extremity in the St. Croix basin.

A band of conglomerate, the only one observed in the exposures of trap in this region of the Dalles, is reported by Mr. D. A. Caneday, in a ravine on the Minnesota side, nearly a mile southwest from the bridge; being a layer eight feet thick, dipping 15° westerly, overlain and underlain by trap, which is dark above and reddish beneath.

Exploration for copper and silver has been made in the trap formation at Taylor's Falls by three shafts. A short distance east of the Lutheran church on the road to Franconia, Mr. N. C. D. Taylor went to a depth of 43 feet, finding films and small masses of native copper. This is near the highest part of these trappean ledges, about 200 feet above the river, and 50 below the average hight of the rolling drift which universally covers the bed-rocks from the top of this river-bluff westward. The two other shafts were sunk by the Taylor's Falls Mining Company, one being near the river, and the other about 75 feet above it, on Ravine street. The last was worked in 1874 and 1875, and reached a depth of 120 feet, following a vein eight to ten feet wide, which dipped to the west about 85°, or ten feet away from a plumb-line. This vein contained ores of both copper and silver. An apparently metalliferous vein, four feet wide, with strike nearly from north to south, is seen on the surface about half-way between this and Mr. Taylor's shaft. Another, eighteen inches in thickness, dipping 12° W. S. W., is described by Mr. Caneday, near the foot of the Upper Dalles, at a little hight above the river; the four inches next to the hanging wall being bornite, a sulphuret of copper and iron, with about a foot of white quartz and a thin earthy layer below.

IV.

LAKE AGASSIZ: A CHAPTER IN GLACIAL GEOLOGY.

[Read before the Minnesota Academy of Natural Sciences, Jan. 6th, 1882.]

BY WARREN UPHAM.

In the last of the geologic ages a very cold climate covered the north part of our continent with ice. Every year the snowfall was greater than could be melted away in summer; and its depth gradually increased till its lower portion was changed to compact ice by the pressure of its weight. This pressure also caused the vast sheet of ice to move slowly outward from the region of its greatest thickness toward its margin. Our reasons for believing that there has been such a wonderful glacial period, are abundant and must convince anyone who gives attention to them.

The surface of the bed-rock at the quarries in this city [Minneapolis], on Nicollet island and beside the Mississippi farther east, bears fine scratches and markings, called *striæ*, like those which are found beneath the glaciers of the Alps. Only one cause is known which can produce markings like these, and this is the rasping of stones and boulders frozen in the bottom of a moving mass of ice, accumulated upon the land in a solid sheet of great extent and depth. As these striæ are found upon the rocky surface of British America and of the northern United States to a southern limit that coincides approximately with the course of the Ohio and Missouri rivers, we must conclude that an ice-sheet has covered these regions.

The superficial material that overlies the bed-rock within this northern glaciated area has everywhere been ploughed up and worked over by the slowly moving ice-sheet, and at its disappearance was left in a deposit of clay, sand, gravel and boulders, mixed in one confused mass, which is called *till*. Except in the valleys, as of the Mississippi at Minneapolis, where streams have assorted these materials and spread them in layers, the till forms the surface of nearly all of Minnesota, its thickness being from 50 to 250 feet. It is the stony and gravelly clay, in which cellars and well are dug; and it forms a sheet of such great extent and thickness that about half of the counties of western Minnesota contain no exposures of the underlying older rocks.

The thickness of the ice-sheet was so great that its striæ and transported drift are found on the top of mount Katahdin, of the White mountains, and the Adirondacks; and over northern Minnesota it was probably of equal depth, or about a mile thick. By the direction in which the boulders have been carried from their original ledges, and by the courses of the glacial markings, we know that the ice moved in general from north to south. In New England its current was southeastward, and the border of the ice-sheet was pushed into the Atlantic to the fishing banks south of Newfoundland and east of cape Cod. Over Canada and the region of the great lakes, the ice-flow was southwestward. A glacial current moving in this direction has spread upon eastern Minnesota a red till, thus colored by the hematite, or anhydrous sesquioxide of iron, contained in the red quartzyte, sandstone and shales of lake Superior, which were eroded by this ice-sheet. In western Minnesota the ice flowed southward from lake Winnipeg to Big Stone lake and thence southeast into northern Iowa, spreading a blue till, with many boulders of limestone.

Terminal moraines, or hills, knolls and ridges of drift heaped at the border of the ice-sheet, are found stretching in a remarkably curved and looped course across Wisconsin, Minnesota, Iowa and Dakota. The line of this formation in Minnesota reaches from Stillwater and Saint Paul northwest to the vicinity of Saint Cloud and to the Leaf hills, this part being at the limit of the ice-current which came from lake Superior; then from the Leaf hills south by Glenwood, lake Minnetonka, and Albert Lea, into Iowa to the vicinity of Des Moines, this part being pushed out at the east side of an extensive lobe of the ice-sheet, whose central current went south and southeast; then, on the west side of the same glacial lobe, its terminal moraine has been traced from central Iowa northward by Spirit lake and lake Benton to the Head of the Coteau des Prairies, twenty miles west of lake Traverse. This moraine was formed at the margin of the areas that were overspread by the ice of our last severely cold epoch.

At some earlier time of the same great glacial period, the ice-covered area extended much farther south, to northeastern Kansas, into Missouri to Saint Louis, and to southern Illinois, Indiana and Ohio. Within this area and entirely surrounded by the ice-sheet, a district about 150 miles long from north to south and 100 miles wide, lying in southwestern Wisconsin and adjoining parts of Illinois, Iowa and southeastern Minnesota, was singularly exempted from glaciation. The picturesque bluffs of rock along the Mississippi from lake Pepin to La Crosse and southward, often standing out isolated and alone like the ruins of turreted castles, are in the region which has no till and has not been planed and smoothed by the ice-sheet.

The end of the glacial period was brought by the genial influence of a milder climate when the surface of the ice-sheet was melted faster than it was replenished by the snowfall. Its depth and extent could no longer increase, but were thenceforth gradually diminished. While the ice had been growing deeper and much of the snow that fell each year remained unmelted, its surface was probably as smooth and nearly level as our most uniform and monotonous tracts of prairie; and its vast area was one white expanse, unflecked by pebbles, earth or even dust, excepting close to the border where its progress was stayed by melting and the drift which had been gathered into the ice-mass became exposed on its surface and was carried forward and heaped at its margin.

At the departure of the ice, the scene was changed. Its surface upon large areas, reaching probably two or three hundred miles from its edge, was hollowed into basins of drainage and channeled by streams which flowed between walls of ice. The boulders, gravel, sand and clay mingled in the ice, mostly in its lower portion, were exposed by this melting, so that at length, when only a small thickness of the ice was left, its surface must have been covered by the drift which it had contained.

The portion of North America which was overspread by the ice-sheet, and from which it disappeared in this way, was of great extent, reaching from the north part of the United States to the Arctic ocean, and from New England to Dakota and westward in British America to the Pacific. The melting and recession of this ice began at its southern border and slowly proceeded northward.

Wherever there was free drainage away from the ice-sheet, a large part of the materials of the drift which had been gathered up into it fell in a comparatively loose, unstratified mass, forming the upper part of the till with its moderately undulating surface, and covering the land upon which the ice had lain, whether this was bed-rock, a ground-moraine, or till formed in an earlier glacial epoch.

Other parts of the drift held in the ice were washed away by its streams and deposited as *modified drift*, forming layers of gravel, sand, and fine silt, in the valleys along which the flood supplied by its melting descended toward the ocean. The high water of the rivers, like that which now occurs for a few days in the freshets of spring, was then maintained through the entire summer, and this was repeated yearly till the glacial sheet had retreated beyond their lines of watershed. The abundant supply of sediment through this time gradually lifted these floods upon the surface of thick and wide plains, sloping with the valleys.

After the departure of the ice, the supply of both water and sediment was so diminished that the streams could no longer overspread these flood-plains, and add to their depth, but were thenceforth occupied mainly in slow excavation and removal of these deposits, leaving remnants of them as plains or terraces, sometimes 100 to 200 feet, or more, above their present channel. The conspicuous bluffs of loess bordering the Missouri river were formed in this way. Along the Mississippi the flood-plain of modified drift at Brainerd and Saint Cloud has a hight about 60 feet above the river ; at Clearwater and Monticello, 70 to 80 feet ; at Dayton, 45 feet; and at Minneapolis, 25 to 30 feet above the river at the head of St. Anthony's falls.

This review of the condition of Minnesota during the glacial period prepares us to understand how the glacial *Lake Agassiz* was formed in the basin of the Red river of the North and of lake Winnipeg during the final melting and gradual recession of the ice-sheet. It thus belongs to the closing epoch of the ice age, when the continental glacier, subdued by a more temperate climate, was yielding its ground between northwestern Minnesota and Hudson bay. During this retreat free drainage from the melting ice could not take place, because the descent of the land is northward. As soon as the border of the ice had receded beyond the watershed dividing the basin of the Minnesota from that of the Red river, it is evident that a lake, fed by the glacial melting, stood at the foot of the ice-fields, and extended northward as they withdrew along the valley of the Red river to lake Winnipeg, filling this valley and its branches to the hight of the lowest point over which an outlet could be found. Until the ice-barrier was melted upon the area now crossed by the Nelson river, thereby draining this glacial lake, its outlet was along the present course of the Minnesota river. At first its overflow was upon the nearly level, gently undulating surface of the drift, about 1100 feet above the sea, at the west side of Traverse and Big Stone counties; but in process of time this cut a channel here 125 to 150 feet deep, and from one to two miles wide, in which lie Traverse and Big Stone lakes, respectively 970 and 962 feet above the sea. From this outlet the Red river valley, 30 to 50 miles wide, stretches 315 miles north to lake Winnipeg, which is 710 feet above the sea. Along this entire distance there is a very uniform continuous descent of a little less than one foot per mile. The drift contained in the ice-sheet upon this area, and the silt gathered by its glacial rivers, were here deposited in a lake, shallow near its mouth, but becoming gradually deeper northward. Beyond our national boundary this lake covered a large area, varying from 100 to 200 miles in breadth at and west of lake Winnipeg; and its total length appears to have been at least 600 miles. Because of its relation to the retreating continental ice-sheet, this lake has been named in memory of professor Louis Agassiz, the first prominent advocate of the theory that the drift was produced by land-ice.

Under the direction of professor Winchell, the state geologist, it was a part of my work last summer to trace the course, and determine the hight, of the shore-line of this ancient lake. This was done in July and August, the only months of the past season which had sufficiently dry weather for entirely satisfactory progress in such exploration. Horace V. Winchell was my efficient assistant as rod-man in the work of leveling, by which the hight of the upper beach was ascertained along its whole extent examined. This was about 175 miles, following the course of the old shore, extending from lake Traverse to the north side of Maple lake, twenty miles east of Crookston. The distance that it includes from north to south is 142 miles.

BEACHES OF LAKE AGASSIZ.

[For a map of these, see fig. 3, plate 1.]

The upper or Herman beach. Along nearly the whole of this distance there exists a remarkable deposit of beach gravel and sand, forming a continuous, smoothly rounded ridge, such as is found along any part of the shores of the ocean or of our great lakes where the land sinks in a gently descending slope beneath the water-level. Usually the beach of lake Agassiz is a ridge three to ten feet above the land next to it on the side that was away from the lake, and ten to twenty feet above the land adjoining it on the side where the lake lay. In breadth this beach-ridge varies from ten to twenty-five or thirty rods. It is thus a broad wave-like swell, with a smooth, gracefully rounded surface.

Such being a section across the beach, remember that this ridge extends along the whole distance that we have explored, with only here and there gaps where it has been cut through by streams and rare intervals of a quarter or a half mile or at the longest two or three miles where the outline of the lake shore, or the direction of the shore-currents, prevented such accumulation. We find similar interruptions in the beaches of present lakes and on the sea-coast; and like these modern deposits the beach of lake Agassiz varies considerably in its size, having in any distance of five miles some portions five or ten feet higher than others, due to the unequal power of waves and currents at these parts of the shore. The moderate slope of the land toward lake Agassiz was favorable for the formation of a beach-ridge, and it has been clearly traced as one continuous formation along this distance of 175 miles. In calling it continuous, we mean that whenever it is interrupted it is found a little distance farther along, beginning again at very closely the same hight.

The gaps where the beach is not a distinctly traceable ridge-like deposit of gravel and sand, cannot exceed one-twentieth of its whole course. In a few places the lake has undermined its shore, forming a terrace in the till, with no definite beach-deposit, the work of the waves having been to erode and carry away rather than to accumulate. In other places, sometimes two or three miles in length, the area where this ancient lake had its margin is a marsh or shaking bog, full of spring water, and rough with hummocks of grass, which grows luxuriantly, but is safe from the hay-makers because teams cannot be driven upon these tracts.

Nearly everywhere along the course of this beach of lake Agassiz the land upon each side is till, or unstratified clay, containing some intermixture of sand and gravel and occasional stones and boulders. The material of the beach-ridge is remarkably in contrast with this adjoining and underlying till, for it includes no clay but consists of stratified sand and gravel, the largest pebbles being usually from two or three to six inches in diameter.

When lake Agassiz stood at its greatest hight and formed the upper beach, its outlet was about 85 feet above the present surface of lake Traverse, or 1055 feet above the sea. The channel which at this time had been excavated in the drift by its outflow was 30 to 40 feet deep along the distance of about fifty miles where now are lake Traverse, Brown's valley, and Big Stone lake. This beach is crossed by the Breckenridge line of the Saint Paul, Minneapolis & Manitoba railway at a point about one and a half miles northwest from Herman.

The Norcross beach. Two lower beaches, of the same character as to form, size, and material, with the highest, were also noted; their course was traced through long distances; and their hight was determined by our leveling. At the next epoch, after that of the upper or Herman beach, when the lake-level was again nearly stationary long enough to form a ridge of gravel and sand upon its shore, the outlet had been eroded about 30 feet deeper than at the time of the upper beach, but was still 55 feet above the present lake Traverse and Brown's valley. The beach of lake Agassiz when it had this lower level is crossed by the Breckenridge railway line at Norcross, five miles northwest of Herman. This is accordingly named the *Norcross beach.* Its course and hight have been determined through an extent of a hundred and fifty miles from Norcross northward to a point twenty-five miles north of Maple lake and ten miles beyond Red Lake Falls.

The Campbell beach. A third series of beach-deposits of similar extent and conspicuous development with the foregoing, was formed when the outlet of lake Agassiz had been lowered some 50 feet more, completing the excavation of its channel to the present beds of Traverse and Big Stone lakes. The beach of this third stage of lake Agassiz crosses the township of Campbell in southern Wilkin county from southwest to northeast, and hence it is denominated the *Campbell beach.* The course of this formation through Wilkin and Clay counties has been noted at a few places; and is thus known approximately. Through its next one hundred miles, from the Wild Rice river to the Tamarack river, it has been traced continuously. For forty miles next beyond Red Lake river the old Pembina trail lies most of the way upon this beach. It has been explored to the north line of Marshall county, sixty miles beyond Maple lake.

Three distinct series of beach-ridges of gravel and sand were thus formed by lake Agassiz at successive stages of hight during its process of deepening the channel by which it outflowed southward.

THE RED RIVER VALLEY.

The central part of the basin of lake Agassiz, within the limits of Minnesota and Dakota, now drained by the Red river, has an exceedingly flat surface, sloping imperceptibly northward, as also from each side to its central line. The Red river has its course along the axial depression, where it has cut a channel 20 to 60 feet deep. It is bordered by only few and narrow areas of bottomland, instead of which its banks usually rise steeply on one side and by moderate slopes on the other, to the lacustrine plain which thence reaches nearly level ten to twenty-five miles from the river. Its tributaries cross the plain in similar channels, which, as also the Red river, have occasional gullies connected with them, dry through the most of the year, varying from a few hundred feet to a mile or more in length. Between the drainage lines, areas often five to fifteen miles wide remain unmarked by any water-courses. The highest portions of these tracts are commonly from two to five feet above the lowest.

This vast plain, twenty-five to fifty miles wide, lying half in Minnesota and half in Dakota, and stretching from lake Traverse and Breckenridge north to Winnipeg, is the widely famed *Red river valley*. The material of the lower part of this ancient lake-bed shown in the banks of the Red river and reaching several miles from it, is fine clayey silt, horizontally stratified; but at its south end, in Traverse county and the south half of Wilkin county, and upon large areas of each side of this plain, it is mainly unstratified boulder-clay, which differs from the rolling or undulating till of the adjoining region only in having its surface nearly flat. Both these formations are almost impervious to water, which therefore in the rainy season fills their shallow depressions, but none of these are so deep as to form permanent lakes. Even sloughs which continue marshy through the summer are infrequent, but, where they do occur, cover large areas, usually several miles in extent.

On all the area drained by the Red river in Minnesota the glacial drift is so thick that no exposures of the underlying rocks have been found. The depth of the drift here is nearly the same as its average throughout the western half of the state, or from 100 to 250 feet. The prominent topographic features of all this region are doubtless due to the form of the underlying rock-surface, upon which the drift is spread in a sheet of somewhat uniform thickness.

Erosion, before the ice age, had sculptured the rocks which are everywhere buried and concealed under this universal drift-sheet, and had formed the broad nearly level depression of the Red river valley, which is 1000 to 800 feet, from south to north, above the sea. Slopes and terraces of these rocks beneath the drift cause the rise eastward from this valley to the lake-sprinkled plateau, 1300 to 1500 feet above the sea, which reaches from Glenwood, Alexandria and Fergus Falls, to the sources of the Mississippi. For example, though the traveler finds no ledge of rock in going from the Red river at Fargo and Moorhead seventy-five miles east-northeast to Itasca lake, we yet believe that the form of the surface, marked by two remarkable terraces, is due to that of the bed-rock. The flat of the Red river valley extends from Moorhead to about six miles east of Glyndon, with a slight ascent of about 50 feet in these fifteen miles. The next two or three miles rise 200 feet to the top of a terrace which reaches from south to north the whole length of the Red river valley in Minnesota, though it is not all the way so distinct nor so high as here. Beyond this ascent the surface is again nearly level, being a sheet of slightly undulating or rolling till, with a rise of perhaps four or five feet per mile, through twenty-five miles eastward. Next is a terrace, also reaching a long distance from north to south, which is ascended in three or four miles, rising about 300 feet, to the White Earth Agency, which thus commands a very extensive western prospect. Thence a more rolling plateau extends, with little change in the average hight, thirty miles eastward to Itasca lake.

In like manner the elevation of the Coteau des Prairies, in southwestern Minnesota, 1500 to 2000 feet above the sea, and the terrace-like ascent at the west side of the flat Red river valley in Dakota, lying at a distance of twenty to thirty miles west of the Red river, and stretching from the south bend of the Sheyenne river north to the British line where it is called Pembina mountain, are undoubtedly due to the contour of the bed-rock, rather than to differences in the thickness of the drift.

The till upon each side of lake Agassiz has a moderately undulating and rolling surface. Within the area that was covered by this lake it has a much smoother and more even contour, but has been only slightly stratified. The action of its waves gathered from this deposit of till, which was the lake-bed, the gravel and sand of its beaches; and corresponding deposits of stratified clay, derived from the same erosion of the till, sank in the deeper part of the lake. But these sediments were evidently of small amount, and are not noticable upon the greater part of this lacustrine area, which consists of a smoothed sheet of till. The position of the thick beds of stratified fine silt and clay in the central depression of the Red river valley, shows that they were not deposited by the waters of lake Agassiz, which must have spread them more generally over its entire area; but instead appears to prove that they were brought by the rivers which flowed into this hollow and along it northward after the glacial lake Agassiz had been reduced to its present representative, lake Winnipeg.

Wells within this area show the character and depth of the drift, but none that we have learned of within the basin of lake Agassiz in Minnesota are certainly known to penetrate through this formation. The nearest point in our state at which the exact depth of the drift is known is Herman, about a mile outside the upper beach, where the till or stony clay, yellow near the surface but bluish below, reaches to the depth of 124 feet, beyond which a well was drilled 65 feet in rock, mostly mica schist. At Campbell a well 260 feet deep went all the way in till, excepting occasional layers of sand and gravel, mostly thin, but at one place eight feet thick, from 165 to 173 feet below the top. At Fargo, in Dakota, the first 95 feet were stratified clay; next was a layer of gravel, 10 feet; then till, 115 feet; below which the remaining 42 feet were probably Cretaceous strata, being soft, dark blue shale, 32 feet; coarse sand-rock, 6 feet; and a second shale, 4 feet, in which the well stopped at a total depth of 262 feet.*

Deep wells farther north in the Red river valley are at Ada, 217 feet; near Crookston, 190, 195, and 205 feet; at Grand Forks, in Dakota, 265 feet; at South Angus, eighteen miles north of Crookston, 253 feet; and at Saint Vincent, 165 feet. Perhaps none of these wells, excepting those at Herman and Fargo, reach through the drift; but the two mentioned at Grand Forks and Saint Vincent, which yield salty and alkaline water, may go below it, and if so, the stratified gravel and sand in which they stop are of Cretaceous age.

The fame of this valley for its large harvests of "No. 1 hard" wheat, averaging twenty bushels to the acre, is nearly equaled by the unenviable reputation of the water supplied by its wells. The drift upon this part of the state contains much of the carbonates and sulphates of lime and magnesia, derived from the Cretaceous strata which covered this area and were ploughed up by the ice-sheet, mixed with much drift from the region of granites, gneiss and crystalline schists on the northeast, and redeposited as till. These alkaline ingredients of the soil are often seen in the dry season forming a white or gray efflorescence, resembling frost, sometimes a quarter of an inch thick.

Wheat thrives better where the soil contains a considerable proportion of these alkaline salts, so that their presence throughout the Red river valley is one principal cause of its superiority in wheat-raising; and this, grown year

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Report of U. S. geological survey of the territories, 1872, p. 301.

after year, gradually takes away these ingredients and prepares the land for other crops. But their effect as dissolved everywhere in wells and streams partly offsets this benefit, and makes the water of all this region objectionably hard, and often in wells and springs noticeably bitter or salt, especially in the northern part of this valley both in Minnesota and Dakota.

These waters, too, more readily than pure water, decompose the wooden curbing, which, being the most convenient and cheapest material, is too commonly used in the wells of this region destitute of stone-quarries. Usually these wells after a few weeks or months become offensive to taste and smell; the water is discolored, gives off sulphureted hydrogen, and horses and cattle refuse to drink it or are made sick by it. Let such wells be pumped so as to fill them with new water every day, and these offensive qualities are principally removed Instead of wood the material for lining wells ought to be stone, iron pipe or bricks, the last of which are manufactured at many places, and may be made almost anywhere, from the stratified clay along the Red river, of excellent quality and at moderate cost.

Artesian wells have been obtained at many places in this valley. Usually in its southern part, as far northward as Crookston, their water has less alkali in solution than the shallower surface wells. The largest flow yet found is on the Fountain Valley farm, owned by C. H. Brush & Co., situated four miles east of Campbell. This well went 56 feet in till to a layer of sand which is known to be 10 feet thick and was not penetrated at this depth, making a total of 66 feet. The diameter of the pipe is one foot, reduced below to seven inches. A large stream of very clear cold water is constantly flowing away from this well, its estimated volume being seven or eight barrels per minute, or about 250 gallons. It has been flowing at this rate more than a year. This water is of excellent quality for house and farm use, but is hard and slightly irony, and deposits a rusty sediment in the channel of the stream. Its temperature is 46 degrees Fahrenheit.

The Ada town-well, 217 feet deep, four inches in diameter, supplies a stream which partly fills a one-inch pipe. It was bored last spring, and has since been running at the rate of about a hundred barrels per day. This water is very transparent, and forms no irony sediment. Its cool temperature, 47 degrees Fahrenheit, and its purity, being called soft water, nearly equal to rain-water for washing, make this a very satisfactory investment for the town. Its cost was about $500.

Another well, nearly like the last in the amount of flow and character of the water, is at E. S. Corser's elevator at Carman, one mile south of Crookston. Its depth is 190 feet.

The deepest well learned of in the Red river valley is at Grand Forks, 265 feet deep. This has an artesian flow; but at the time of my visit in last August, its rate of flow, probably because the pipe had become choked with sand and clay, was very small, not amounting to more than two or three barrels in twenty-four hours. This water has a decidedly brackish taste, and is therefore worthless for any ordinary use. The well at Saint Vincent, 165 feet deep, is of the same alkaline character. Both were bored to supply water for locomotives but cannot be used because of their mineral residue.

It may be that these very deep wells derive their alkaline and salty water from Cretaceous strata; but some shallower artesian wells in this north part of the

Red river valley get quite brackish water from layers of gravel and sand contained in the drift. One of these is on the farm of E. N. Davis, in the south edge of Kittson county, about thirty miles south of the national boundary. This is 45 feet deep, and was bored in a quarter of a day with an ordinary two-inch auger. Its flow has continued nearly constant through more than a year, at the rate of three pailfuls a minute, or more than three hundred barrels daily. Its temperature is 42 degrees. Though salty to the taste, it was drank freely by farm-stock through all last winter with no apparent injury, and it has been used by people as the only water for drinking and cooking through several weeks of drouth. The hight to which it will rise is known to be more than 23 feet, at which hight the flow seemed to be undiminished.

The upward pressure and abundant supply of water in these wells show that the water-bearing layers of stratified drift enclosed in the till are continuous through long distances and descend from a higher level. The veins of soft water found at the depth of about 200 feet at Ada and Carman probably have their sources upon the high land twenty miles distant eastward.

THE OUTLET OF LAKE AGASSIZ.

The excavation of the remarkable valley occupied by the Minnesota river was first explained in 1868 by general G. K. Warren,* who attributed it to the outflow from this ancient lake that filled the basin of the Red river and lake Winnipeg. This valley or channel begins at the northern part of lake Traverse, and first extends southwest to the head of this lake, thence southeast to Mankato, and next north and northeast to the Mississippi at Fort Snelling, its length being about 250 miles. Its width varies from one to four miles, and its depth is from 100 to 225 feet. The country through which it lies, as far as to Carver, about twenty-five miles above its junction with the Mississippi, is a nearly level expanse of till, only moderately undulating, with no prominent hills or notable depressions, excepting this deep channel and those formed by its tributary streams. Below Carver it intersects a belt of terminal moraine, composed of hilly till. Its entire course is through a region of unmodified drift, which has no exposures of solid rock upon its surface.

Bluffs in slopes from twenty to forty degrees, and rising 100 to 200 feet to the general level of the country, form the sides of this trough-like valley. They have been produced by the washing away of their base, leaving the upper portion to fall down and thus take its steep slopes. The river in deepening its channel has been constantly changing its course, so that its current has been turned alternately against the opposite sides of its valley, at some time undermining every portion of them. In a few places this process is still going forward, but mainly the course of the Minnesota river is in the bottomland. Comparatively little excavation has been done by the present river. As we approach its source, it dwindles to a small stream, flowing through long lakes, and we finally pass to lake Traverse, which empties northward; yet along the upper Minnesota and at the divide between this and the Red river, this valley or channel and its enclosing bluffs are as remarkable as along the lower part of the Minnesota river. It is thus clearly shown to have been the outlet of lake Agassiz, excavated while the melting ice-sheet supplied extraordinary floods, much greater in volume than the combined waters of the Minnesota and Nelson rivers at the present time.

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* Since the above was written, the lamented death of this distinguished soldier and engineer, whose interest in science added much to our knowledge of the geography and geology of the Northwest, occurred Aug. 8, 1882.

This valley in many places cuts through the sheet of drift, and reaches the underlying rocks, which have frequent exposures along its entire course below Big Stone lake. This excavation shows that the thickness of the general drift-sheet upon this part of Minnesota averages about 150 feet.

Lakes Traverse and Big Stone are from one to one and a half miles wide, mainly occupying the entire area between the bases of the bluffs, which rise about 125 feet above them. Lake Traverse is fifteen miles long; it is mostly less than ten feet deep and its greatest depth probably does not reach twenty feet. Big Stone lake is twenty-six miles long, and its greatest depth is reported to be from fifteen to thirty feet. The portion of the channel between these lakes is widely known as Brown's valley. As we stand upon the bluffs here, looking down on these long and narrow lakes in their trough-like valley, which extends across the five miles between them, where the basins of Hudson bay and the gulf of Mexico are now divided, we have nearly the picture which was presented when the melting ice-sheet of British America was pouring its floods along this hollow. Then the entire extent of the valley was doubtless filled every summer by a river which covered all the present areas of flood-plain, in many places occupying as great width as these lakes.

General Warren observes that lake Traverse is probably due to a partial silting up of the channel since the outflow from the Red river basin ceased, the Minnesota river at the south having brought in sufficient alluvium to form a dam; while Big Stone lake is similarly referred to the sediment brought into the valley just below it by Whetstone river. Twenty-five miles from Big Stone lake, the river enters Lac qui Parle, which extends eight miles, with a width varying from one-half to three-fourths of a mile and a maximum depth of twelve feet. This lake, as general Warren suggests, has been formed by a barrier of stratified sand and silt which the Lac qui Parle river has thrown across the valley.

THE NORTHERN BARRIER

by which the water of lake Agassiz was restrained from flowing in the direction of the present drainage, to Hudson bay, is supposed by general Warren to have been an elevation of the land much above its present hight northeast of lake Winnipeg. He thinks this elevation was shared by other northern portions of North America, and that these regions have recently been depressed at least several hundred feet. The depths of the great lakes, and many topographic features of the interior of the continent, besides this channel of lakes Traverse and Big Stone and the Minnesota river, appear to him to support this opinion. Instead of this, we believe that the surface of the continent had nearly the same form then as now, and that the continental ice-sheet, resting on the land in a solid mass of great depth, formed the northern shore of lake Agassiz and was the barrier that prevented its flowing into Hudson bay.

Before adducing the evidence, apparently amounting to positive proof, of this glacial origin of lake Agassiz, which is drawn from our exploration of its beaches and determination of their hight, we ought to mention that professor Dana's and general Warren's theory of an elevation of the northern part of the continent, during the ice age or since that time, followed by subsidence to its present hight, is opposed and disproved by the general occurrence of sea-beaches and marine shells above the present sea-level all along our northern shores. They show that the ocean in these recent epochs covered more of the land than now in northern latitudes; that is, that the elevation of the land, as compared with the sea-level, was less instead of greater than at present. More than this, the hight at which these recent marine deposits and sea-shells are found, increases from south to north. In New Hampshire and Maine it is from 50 to 300 feet above our present sea-level; in the St. Lawrence valley, about 600 feet; and on the coast of Labrador, about Hudson bay, and in Greenland, 600 to 1500 feet. Our proof that the ice-sheet was the northern barrier of lake Agassiz, also gives us an answer to the question why the sea-level thus rose higher than now toward the north.

The three series of beach deposits before described (mapped in fig. 3, plate I), which mark the shores of lake Agassiz at as many stages of its hight, have each been traced, and their altitude determined, through an extent of about 150 miles from south to north; and each of them, like the old sea-level, is found to have a gradual ascent northward, as compared with the present level-line, or the surface which a body of water would have now, if confined in this valley. As before stated, these beaches were formed at epochs when the lake-level was nearly stationary for a considerable time during the excavation of its channel of outlet at lake Traverse and southward. The hight of the mouth of the lake and its outflowing river was at the time of the upper or Herman beach 85 feet above lake Traverse; at the time of the Norcross beach this outlet had been lowered 30 feet; and when the Campbell beach was formed, it was nearly at the present level of lake Traverse.

Our exploration and leveling along the upper beach extended from the north end of lake Traverse about 25 miles eastward to Herman and thence about 140 miles north to Maple lake. Through this distance it lies from fifteen to thirty miles east of the Red river. The ascent of this beach northward is at the rate of about four-tenths of a foot per mile in its southern portion for about 60 miles, lying in Traverse, Stevens, Grant, Otter Tail and Wilkin counties. Farther north, through its remaining 80 miles in Clay, Norman and Polk counties, its rate of ascent is considerably greater, varying from three-fourths of a foot to one and a half feet per mile. In all, the surface of lake Agassiz at this time of its greatest hight ascended northward, above a line now level, 125 feet in these 142 miles, from 1055 feet, very nearly, above sea in Traverse county, to 1180 feet, very nearly, at the north side of Maple lake, twenty miles east-southeast from Crookston. Through this distance the upper beach clearly marks one continuous shore-line; and the accuracy of our leveling is attested by close agreement with railroad surveys at five widely separated points.

Before lake Agassiz had fallen below the line of this upper beach in the south half of its explored extent, it had formed a slightly lower parallel beach, three-fourths to one and a half miles distant, through the northern third of Clay county; and this secondary beach, sometimes double or treble, was noted at several places along the next thirty miles northward. The continuation of this beach at the northwest side of Maple lake was accumulated when lake Agassiz had fallen at this latitude about fifteen feet below its highest line. Here it is the second of a series of four well-defined beach-ridges below the upper or first beach, which were formed when the lake had fallen successively about 8, 15, 30 and 40 feet from its highest level. Yet all these beaches were accumulated while the lake remained with only very slight depression of level, not sufficient for the formation of any secondary beach-ridge, along its southern part for some 75 miles northward from lake Traverse and Herman.

The Norcross beach has been explored and its hight measured through a length of 150 miles. In this distance it ascends northward about 70 feet by a nearly uniform slope of a little less than a half foot per mile. The amount that the surface of lake Agassiz had fallen at this time from its highest level was 30 feet in Traverse and Grant counties, 50 feet in northern Clay county, and 90 feet northwest of Maple lake. Its fall in this extent of 150 miles had been thus 60 feet more at the north than at the south end. Double and multiple ridges occur along the northern half of this distance, and show that the lake-level at the time of formation of the Norcross beach fell five to ten feet northward while it remained without change or with less change than was required to form additional beach-ridges southward.

The hight of the Campbell beach, formed when the outlet had been excavated to the level of lake Traverse, is known along a distance of 135 miles, in which its northward ascent was at first 50 feet, and afterward only about 25 feet. This continued depression of the lake northward, while it remained with slight or no change southward, is indicated, similarly with the foregoing, by the occurrence of an additional ridge, along the northern part of the course of this shore-line. The fall of lake Agassiz from the upper or Herman beach to the Campbell beach was about 80 feet at the south near lake Traverse, and 165 feet at the north near Maple lake; and instead of the northward ascent of the upper beach 125 feet in 142 miles, we find the corresponding ascent of the Campbell beach in nearly the same distance at first 50 feet, but reduced later to half this amount.

If the barrier north of lake Agassiz had been land, its subsidence to give way for drainage northward in its present course would cause the beach deposits of the former lake-shores to have the opposite slope, or a descent, from south to north. These observations are therefore inconsistent with such explanation of the cause of this lake; but they appear to prove that its northern barrier was the receding continental glacier. All the differences of the once level lines of lake Agassiz from our present level-line would be produced by the gravitation of the water of the lake toward this ice-sheet. At first this attraction had a large effect upon the lake-level because of the nearness of a great depth of ice on the east, in northern Minnesota and northward in British America, but it was gradually diminished to a comparatively small influence when these ice-masses had been melted and the attracting force proceeded from the region far north between lake Winnipeg and Hudson bay.

In the same way the ocean during the glacial period was drawn toward the ice-sheet, so that northward it stood higher than now, as shown by its recent deposits along our northern coasts, far above the present sea-shore. It appears that the form of the surface of the continent during the ice age was about the same as it is to-day; but that the sea-level was much changed by the great accumulations of ice, being drawn toward them by gravitation and thus raised higher than now toward the poles, while it was proportionately lowered about the equator.

AREA AND DEPTH OF LAKE AGASSIZ.

The upper beach of lake Agassiz, as here described from lake Traverse and Herman north to Maple lake, extends through a prairie region, very favorable for exploration and leveling. Its farther course turns to the east and northeast and lies in a trackless forest, much of which consists of almost impassable tamarack swamps. It is therefore quite impracticable to trace its course exactly through this wilderness; but from the known elevation of Red lake, 1140 or 1150 feet, very nearly, above the sea, of the lake of the Woods, 1042, and of Rainy lake, about 1175, the outline of lake Agassiz when it had its greatest hight can be mapped approximately.

From the north side of Maple lake it first extends east sixty miles, passing south of Red lake. Next this shore of lake Agassiz turns northward east of Red lake, beyond which it again runs eastward, crossing the Big fork of Rainy Lake river, and extends along the south side of Rainy lake, its hight above Red and Rainy lakes being probably between 50 and 100 feet. Thus lake Agassiz at this time of greatest hight reached along our northern boundary beyond the meridians of Minneapolis and Saint Paul. Its expanse included no islands, excepting rarely one of small area close to its shore.

When this glacial lake attained its greatest extent, just before it found an outlet into Hudson bay over the melting ice-sheet, its length from south to north was probably greater than the length of lake Superior; but its area was only half or two-thirds that of lake Superior, because of its less average width.

At the time of the formation of its highest beach, the depth of lake Agassiz above the lake of the Woods was some 200 feet; above the Red river valley at our northern boundary, 450 feet; and above lake Winnipeg, about 600 feet.

LETTER.

CHEMICAL LABORATORY, HAMILTON COLLEGE,
CLINTON, ONEIDA COUNTY, N. Y., July 11, 1883.

Prof. N. H. Winchell:

MY DEAR SIR, — I enclose herewith my long delayed paper on your Minnesota Iron Districts. The delay, however, has not been through any neglect of mine, but because I could not, until recently, persuade the owners to allow me to make the facts public. I now send you a complete statement, which I hope you will consider of some value to your work. Every analysis given was made here by myself, personally, and I will answer for the correctness of all the chemical work. The story might perhaps be made stronger for Vermilion, but it is strong enough as I put it.

Very sincerely yours,

ALBERT H. CHESTER, E. M., Ph. D.
Prof. of Chemistry and Mineralogy.

V.

THE IRON REGION OF NORTHERN MINNESOTA.

BY ALBERT H. CHESTER.

There are two extensive iron districts in northern Minnesota, known respectively as the Mesabi Iron Range, in Town 59, Range 14 W. and Town 60, Ranges 12 and 13 W., and the Vermilion Iron District, in Town 62, Range 15 W. These districts are about twenty miles apart. Within a few years both have been very carefully explored to ascertain the extent and value of the ore deposits. Before these explorations were undertaken all knowledge of this region, inhabitated only by Indians, was obtained from the explorers and timber hunters who had run over it in the pursuit of their calling, and from those who had visited Vermilion lake during the gold excitement of 1866. Little attention was paid to iron at that time however, though some samples of the hematite from T. 62, R. 15, were sent with the so-called gold ores to be exhibited with other ores from Minnesota at the Paris Exposition of 1867. The pieces sent were large and handsome samples of nearly pure, hard, specular iron, and it is strange that they did not attract more attention. In May, 1867, the Smithsonian Institution distributed boxes of mineral specimens to such academies as applied for them. No. 5021 of the list of minerals sent is labelled "Hematite, Vermilion lake, Minn." As these were fair sized cabinet specimens, and a hundred or more of the boxes were sent out, a considerable quantity of the ore must have been brought down in 1866, to furnish the material used. It was not however until 1875 that the Mesabi district was explored, and Vermilion received little attention as an iron district until the expedition of 1880. It is the object of this paper to give in detail the results of these expeditions.

THE MESABI IRON RANGE.

To reach this district the old government road to Vermilion lake was followed as far as the Embarras bridge. From this point a new road was cut out, striking T. 59, R. 14 in the southwest quarter of section 31. Before reaching this township evidences of what is to appear are seen in the decided disturbance of the compass needle, and the occasional pieces of magnetite in the drift. Some of these are of considerable size and cause so much variation of the needle as readily to lead an observer to suppose that ore bodies of magnitude were near at hand. No ore in place was found, however, until section twenty-eight was reached, where, in the southwest of the northwest quarter the ledge was exposed by sinking to a depth of eighteen feet, and the rock found to be magnetitic quartzyte similar to that described below, and too poor to be called ore or to deserve farther attention.

In the northwest of the northwest quarter of section fourteen considerable excavations were made to ascertain the nature of the deposit, there being a decided outcrop of magnetite. The rock strata throughout the district lie nearly horizontal, and the beds of ore are intercalated with the everywhere abundant quartzyte. The slight dip here is to the south, as is usual throughout the district. A perpendicular face of about fourteen feet was exposed and was found to consist of layers of mixed quartzyte and ore. A sample from the best layers, aggregating four and a half inches in thickness, was taken for analysis, and showed 48.47 per cent. of iron.

About a half mile east of this point, in the same quarter-section, ore shows on the surface for a length of thirty feet. Here a pit was sunk cutting the strata at right angles. At the top three feet of white quartzyte was found. Underneath this lie six feet of mixed magnetite and quartzyte. At this depth a layer of ore comes in a foot and a half thick, of which four inches at the middle is better than the rest and contains 53.45 per cent. of iron. For seven feet below this to the bottom of the pit the ore is very poor.

Near the center of section eleven there is a bold outcrop of jaspery hematite, at the foot of which a pit was sunk to considerable depth. At fifteen feet from the surface a layer of black sand was found containing boulders of quite pure hematite. An average sample from these boulders showed 62.17 per cent. of iron, almost the richest ore discovered in the district. Careful search failed to find the ledge from which these boulders came, and they seemed a novelty in a district covered with horizontal layers of magnetite and quartzyte.

The next exposure of ore was found near the center of section 24, T. 60, R. 13. The best ore found here was a layer on the top about two and a half inches in thickness and containing about 60 per cent. of iron. A pit was sunk to a depth of thirteen feet but nothing was found as good as that on the surface.

In the northwest quarter of section 20, T. 60, R. 12 W., the most important of the workings of Mr. Peter Mitchell, the first explorer of the Range, was found. This was a pit six feet in depth, and from it was said to have been obtained the best ore he brought back. This old pit was cleaned out and sunk to a depth of 11.2 feet. The stratification on one side of the pit was as follows :

3 0	feet,	surface soil, sand and gravel.	
0.4	"	ore,	sampled.
0.7	"	poor ore,	
0.5	"	ore,	"
0.6	"	medium ore,	
0.2	"	ore,	"
0.6	"	"	"
2.0	"	poor ore,	"
0.2	"	ore,	
0.6	"	poor ore and quartzyte,	
1.3	"	ore,	"
0.6	"	"	"

As mentioned above, this represents only one side of the pit, the changes from magnetite to quartzyte being so abrupt that the layers of ore can seldom be followed for any distance. The total thickness of ore shown here is about three and a half feet and the sample made from all the best layers gave 44.10 per cent. of iron. Selected samples from this place previously brought out by Mr. Mitchell gave on analysis the following results:

	1	2	3	4	5
Metallic iron	52 67	57 95	53.51	56.76	56.88
Silica	22 22	11 37			
Alumina		2.84			
Lime	0 22	1 53			
Magnesia	1.61	3.33			
Manganese oxide		1.32			
Sulphur	trace.	0 06			
Phosphorus		trace.			
Oxygen with iron		22.08			
Total		100.48			

These analyses were made by the writer previous to the expedition, and from samples furnished by the owners of the property. The magnetic character of these samples was very noticeable, some very fine lodestones having been found among them. This is a prominent characteristic of all the best ore of the district.

Another of Mitchell's old workings was found on the line between sections 18 and 19, in the same town. This was continued until a total depth of fourteen feet was attained. About four and a half feet of good ore was found at this place, an average sample showing 52.82 per cent. of iron.

In the northeast quarter of section 17, T. 60, R. 12, a ledge was discovered which, after having the talus at the base cleared away, exposed the stratification for a hight of twenty-five feet as follows :

0.2	feet	best ore.
1.5	"	good ore.
2 5	"	ore mixed with quartzyte
0.2	"	good ore.
10 6	"	poor ore and quartzyte.
10.0	"	quartzyte with some ore.

The whole amount of good ore here shown is less than two feet, the best being at the very top of the cliff and showing 62.37 per cent. of iron. Clearing off the moss on the level ground at the top, the whole surface for some distance is shown to be of this layer, smoothed and polished by glacial action, and as one walks over it he seems to be walking on solid iron. The deposit at this place is of sufficient extent to give color to the story of "a mountain of iron, larger and richer than the famous Iron mountain of Missouri." But when the surface is carefully examined it is seen to have a mottled or marbled appearance in consequence of the constant changes between the magnetite and quartzyte. No layer can here be followed any distance without showing this change. This lack of uniformity is one of the most noticeable features of these deposits.

In the northwest quarter of section 20, an outcrop of the ore is seen in the bed of a small brook. A layer of about six inches in thickness and of considerable permanence can here be followed for nearly a quarter of a mile. The dip of the stratum is to the south at the rate of about six feet in every one hundred. An average sample of this ore shows 57.12 per cent. of iron.

A sample was made from all the specimens brought back which showed by analysis 44.68 per cent. of metallic iron. It was extremely difficult to take fair samples of the ore on account of the continual changes in the character of the layers, but so large a number of specimens were selected, covering so great an extent of territory, that this is believed to be a fair representation of the richness of the ore in the district, above the level of the swamp water. All the pits were sunk to this level, and work was stopped only when the water came in so rapidly that further work was impossible without pumping.

A ledge of quartz containing galena should be mentioned here, which was found in the southeast quarter of section 11, township 59, range 14. This vein of quartz dipping 78° to the southeast and cutting through the horizontal beds of quartzyte has a very interesting appearance, and from the galena it shows was at once called a silver mine by the miners. But careful assays of the ore obtained failed to reveal any trace of the precious metal, and the amount of galena is too trifling to make it of value as a lead ore.

The quartzyte so often mentioned here is a greyish colored quartz-schist often slaty and arenaceous, and generally more or less impregnated with magnetite, though sometimes free from it. Even the strata that are richest in iron show plainly this mode of formation. A sample of this magnetitic schist, which well illustrates the whole, examined under the microscope by polarized light, showed areas of nearly pure magnetite with some hornblende and quartz, in which were minute crystals of apatite.

These magnetitic schists are terminated on the north by a red or pink granite which constitutes the backbone of the Mesabi range. The nearly horizontal schists abut against this backbone, which rises abruptly in some places to a considerable hight.

The granite was not examined under the microscope but appeared to the eye to be much the same as the one described further on, and which forms the divide between the waters flowing north and those running south. It is probable that the Mesabi range originally formed this divide, but now the Embarras river has broken through it, and discharges into the Saint Louis river and thence into lake Superior.

The schists and slates of the Mesabi district dip in general toward the south, but never at an angle of more than two or three degrees from the horizontal, the dip changing a little from point to point so as to present the appearance of a slightly undulating surface. In all respects except this horizontal bedding the Mesabi district is precisely similar to the Penokee region of Wisconsin, and a person familiar with the latter cannot fail to notice the close resemblance. Here are the same magnetitic schists, hornblendic magnetitic schists, dark and light grey quartz schists, arenaceous grey and white quartzytes, and other similar rocks; and especially, here is the same apparent substitution of quartzyte and magnetite for each other. The writer pointed out this resemblance in his report on the Mesabi district, presented in 1875, and is now clearly of the opinion that the iron-bearing rocks of this district bear the same relation to the Huronian series as do the rocks of the Penokee Iron range in Wisconsin.

On the north side of the Mesabi ridge the rock strata are much more inclined and consist of similar slates and quartzytes, but without the magnetite. The general trend is east and west following the line of the ridge. There is a second belt of red granite, the one alluded to above, exposed on the long portage between the Embarras and Pike rivers, in the southwestern part of T. 60, R. 15 W., which is identical in appearance with that of the Mesabi backbone. This is a medium grained, flesh red or pink hornblende-granite, in which the crystals of feldspar are sometimes porphyritically developed, and show twinning of the Carlsbad type. Under the microscope it presents the following characteristics. Microcline, oligoclase and orthoclase are the principal ingredients, named in order of abundance. Quartz is very plenty and also common green highly dichroic hornblende. Magnetite and ferrite occur as accessories.

In descending the Pike river but little rock was found in place, but at one of the rapids in the south part of T. 61, R. 16, there is a considerable exposure of a blackish schist, the beds being nearly perpendicular, dipping however slightly to the south. The trend of these beds is similar to that of the rocks found in connection with the iron further north. These are hornblendic biotite-schists, minutely crystalline, of dark grey color, schistose in structure, and pyritiferous. Under the microscope there is seen a quartz groundmass of very fine particles; biotite in minute scales; hornblende, next in abundance, and rather plentifully distributed through the rock in relatively good sized crystals. Porphyritic quartzes are also seen with quite distinct crystalline outlines; as accessories pyrite and ferrite are seen. This is at once recognized as a typical Huronian schist.

THE VERMILION LAKE IRON DISTRICT.

At the time of the explorations in the Mesabi Iron range in 1875, attention was called to the iron near Vermilion lake, and some preliminary exploration was made there. Although the full extent of the deposit was not discovered, enough was seen to warrant a favorable report, and many samples were brought back and analyzed with results as follows:

	1.	2.	3.	4.
Metallic iron	64.25.	67.77.	65.19.	63 26.
Silica				7.57.
Alumina				1.89.
Phosphorus				trace.
Sulphur				0 05.
Oxygen with iron				27 11.
Total				99 88

These samples were obtained from what was afterwards ascertained to be T. 62, R. 15 W., No. 1 being from section 27, No. 2 from section 28, No. 3 from section 33, and No. 4, an average of all the samples obtained. On account of the depression in the iron market nothing further was done in the matter until 1880, when an exhaustive examination of the whole district was made.

The belt of iron ore is well defined where exposed, and numerous trenches were made to show it where it was covered up with the superficial layer. The ore is found as usual in connection with jasper and quartzyte, and in many cases presents well defined walls of slate. It is intimately bedded with the rocks of the country, and stands so nearly perpendicular that it was difficult to ascertain the true dip, but as the result of many observations it was thought to incline slightly to the south. The trend is generally east and west, though this varies from point to point. The rock strata are very much folded and contorted showing evidence of great geological disturbance. The topography of the country resembles in a marked degree other Huronian iron regions, the general characteristics being low hills, and short ridges without regularity, separated by swamps and small lakes. Often the rock ledges are exposed, sometimes forming perpendicular cliffs, and these have served to determine the general details of the surface; but there are masses of earth and gravel in many places, which modify and alter the topography to a considerable extent, some of the ridges being entirely composed of such material. The evidence of glacial action is also very marked, the rocks being worn and polished in many places, the grooves and striations having the general direction S. 10° W. The prevailing rocks are the slates and schists found in other Huronian areas in connection with iron ore beds.

As developed by the exploration there seem to be two principal deposits of ore, running nearly east and west, and about a mile apart. The more northern one, nearest the lake, and upon which are located the Stone, Tower, Stuntz and Ely mines of the Minnesota Iron Co., has a total length of nearly a mile, continuing from the eastern part of section 28, nearly across section 27. The outcrop was seen on the surface in many places, and by trenching the whole width of the bed was exposed wherever practicable, until the fact was demonstrated that the deposit is one of great magnitude, rivaling those of Marquette and Menominee. The following table shows the width of ore on the surface, the average per cent. of iron in samples taken all across the bed without any sorting, and the character of the ore at the various places.

Mark.	Width of bed.	Per cent. of iron.	Character.
1	30 feet.	59.98	Bright, hard, specular.
2	30 "	54.29	"
3	38 "	56.45	"
4	35 "	59.58	Soft hematite.
5	16 "		"
6	18 "		"
7	25 "	58.21	Bright, hard, specular.
8	16 "		"
9	17 "	60.47	"
10	44 "	61.84	"
11	10 "		"
12	10 "		"
13	15 "		"
14	58 "	59.87	"
15	10 "		"
16	10 "		"
17	30 "	50.27	"
18	11 "		"

At some of these points the ore is very pure and free from admixture of rock, and needs little sorting. At others there are several seams of slate and jasper included in the sample, which would be sorted out in actual mining operations.

A description of one of these exposures will show the great similarity of the deposits to those of northern Michigan. At the one marked 3, for instance, the cross section is as follows, beginning at the North side:

6 feet, ore.
10 feet, ferruginous slate.
7 feet, ore.
8 feet, slate.

6 feet, jaspery ore.
18 feet, ore
20 feet, lean ore.
13 feet, brownish talcose schist.
22 feet, banded jasper.
7 feet, ferruginous slate.

The swamp water prevented further exploration at either end.

At 9 the ridge is abruptly terminated by a cliff of the presnt, brightest and hardest, steely looking ore, making the finest display in the district. The walls of the ore deposit are here clearly marked, being slate on the south and jasper on the north side. The end of the ridge was found completely covered with huge blocks of pure ore for a distance of 100 feet, which had been broken off and thrown down by the elements.

An average sample made from all the specimens taken from this belt was analyzed with the following results:

Silica,	5.55	per cent.
Iron,	58.31	"
Alumina,	9.96	"
Lime,	0.55	"
Manganese oxide,	0.20	"
Sulphur,	0.14	"
Phosphorus,	0.065	"
Oxygen,	25.08	"
Total	99.855	"

This percentage of iron is very high when we consider that all seams of quartz, jasper and slate occuring in the beds were included in the sample. Analysis of a sample picked from the richer pieces, carefully excluding all that showed any rock, showed 69.17 per cent. of iron.

The other principal deposit of the district is in section 33, where the exposures can be followed for a distance of nearly half a mile. The general description given above will suffice for this deposit, though the widest surface exposure is found here. At one place the writer walked forty steps across the outcrop of the bed which stands as before nearly perpendicular. An average sample for a width of 120 feet, gave 57.04 per cent. of iron. The following table shows some of the measurements and percentages:

Mark.	Width of bed.		Per cent of iron.	Character.
19	26	"	54.88	Hard specular.
20	18	"		"
21	5	"	62.82	"
22	120	"	57.04	"
23	14	"	52.43	"
24	26	"	54.70	"
25	13	"		"

The ore of this deposit is more streaked with white quartz than that of the other belt, and consequently does not show so high a percentage of iron. A partial analysis of an average from all the samples obtained from here gave the following results.

Silica	11 63
Iron	55 86
Sulphur	trace
Phosphorus	0.034

The percentage of phosphorus is, however, very small, making it a true Bessemer ore, and it can easily be sorted to high grade. A sample of sorted ore was made from each deposit and analyzed with results as follows:

	1	2
Silica	3 39	3.89
Iron	66 93	66.43
Alumina	0.74	0.85
Lime	0.08	trace
Phosphorus	0.011	0.006
Sulphur	0 01	none
Oxygen	28 695	28.477
Total	99.856	99.653

No. 1 is from the northern belt, and No. 2 from the southern.

It seemed desirable to ascertain the geological relations of the rocks of this district, and rock samples were carefully taken, many of which were subjected to examination in thin section under the microscope by polarized light. The most common rock of the region, and the ore in which the quartz veins formerly worked for gold are found, is a sericitic quartz-schist. It is aphanitic, dark-gray in color, not very hard, and with a sharp-edged fracture. Not thinly schistose, and effervesces in acids. Under the microscope it is an excessively fine-grained rock, with a ground-mass of minute quartz particles. There is a felt-like mass of sericite fibres all through the ground-mass, which are very close together and run in a common direction, but are more or less interwoven. Numerous particles of calcite are seen, and some magnetite.

A series of samples from the south of the ore, represents a highly altered mica schist, with sericite prevailing in the ground-mass. Porphyritic quartzes and fine quartz crystals are often seen in the ground-mass. Some of the sections show an abundance of chlorite. Hematite, limonite and magnetite are present as accessories, some specimens being red-stained by the iron. There are also some peculiar aggregations of brownish and blackish particles which may represent some original constituent, possibly andalusite or staurolite.

The samples of slates intercalated with the ore were found to be the same sericite schists, but more completely replaced by iron oxide, which reddens and permeates the rocks. In some cases this replacement is so complete as to constitute beds of soft hematite.

The rocks north of the ore, between it and the lake, are mostly these same schists but not so much altered. Some of the specimens are still dark colored, and not much altered. Others are a mere clay. Banded jasper is also found in abundance, and also something closely resembling novaculite. A very siliceous limestone is found in many places exactly similar to one common in the Huronian of Michigan and Wisconsin. Its best development at Vermilion is at Ely island.

At one point in the eastern part of section 27, there is a break in the continuity of the ore deposit where a small stream runs south into the swampy ground south of the ore. On the east side of the small ravine caused by the stream, the ore is in place, showing a width of 30 feet, but on the west side it was not found. Every change in the rocks was carefully noted and samples were taken throughout the length of the ravine, crossing the line of the ore and continuing several hundred feet south of it, and north of it to the lake. The rocks were found to be largely the same sericite schists, showing under the microscope folia of sericite, and quartz, in the ground-mass; porphyritic quartzes with crystalline outlines; brown opaque particles as before; and chlorite. Some are magnetitic quartz-schists exactly similar to those of Mesabi. One section in particular shows a ground-mass of minute closely fitting angular quartz particles composing most of the rock. Magnetite is abundant in this specimen, in many square and rhombic sections. The red color of some of them is due to the presence of red oxide of iron. Particles of specular hematite are also seen. As at Mesabi there is a small quantity of hornblende. Besides these sericitic and magnetitic schists, and the banded jasper and specular iron. very fine granular quartzytes were found. In one specimen of this kind there was seen quartz in very close-fitting angular particles, composing most of the rock; magnetite in minute particles, often distinctly outlined, and films of real oxide of iron among the particles of quartz. Some altered quartziferous porphyries were also found near the lake. These are of a grayish color and much weathered. They are aphanitic, non-schistose and with porphyritic glassy quartz crystals. Under the microscope they show the characteristics of altered porphyries, the ground mass being largely kaolinized, though the original felsitic character can still be clearly made out. Another quartzyte found in section 22 in considerable masses is white and granular. Under the microscope it exhibits large quartz and feldspar particles, buried in a matrix of the same materials, and may be of fragmental origin.

The above describes all the varieties of rock collected in the town where the iron is found. The next town east, T. 62, R. 14 W., was carefully looked over for the continuation of the ore deposit, but it was not found. This town is very much cut up with small lakes and swamps, but many rock exposures were found and samples taken, particularly from sections 9, 11, 15, 16, 17 and 19. Those brought back consisted of light colored granite, aphanitic dark grey slate, black aphanitic quartz-magnetite schists, the amount of magnetite varying in different specimens, sericitic quartz-schists, jaspery rocks, and fine-grained quartzytes. One of the latter appears as follows under the microscope. Quartz in fine particles which are angular and interlocked; magnetite and red oxide of iron in patches, and pyrite, while veins filled with chlorite and epidote intersect the specimen.

In section 2 of the same town about three miles north of the line of the ore beds, rocks of a very different character are found. They are more chloritic, of a decidedly greenish color, and schistose in character. There are also greenish aphanitic slates and banded magnetitic cherts, resembling in every particular the Laurentian rocks found in connection with the iron-bearing Huronian rocks of the south shore. In T. 63, R. 13, similar rocks were found which bear a very close resemblance to the Laurentian rocks just mentioned, one being a greenish aphanitic schist, and another a medium grained, dark greenish semi-schistose and highly crystalline rock. Another is seen under the microscope to be a dioryte, consisting of hornblende and oligoclase as the only important constituents, and in nearly equal proportions. The hornblende is in large ragged-edged green sections, while some of the feldspars are much altered. There is some epidote as an alteration result, in clusters of round grains, with apatite and magnetite in minute quantity.

Besides a careful examination of the iron-bearing rocks, the so-called gold deposits were looked over. Specimens were collected from many quartz veins, on some of which mines were formerly located; and all were carefully assayed. It is hardly necessary to say that not a trace of gold was discovered. No true iron pyrites was found, but all was of that form known as pyrohotine, or magnetic pyrites. Among the many samples of pyrites, from all parts of the country, assayed for gold at the laboratory of Hamilton College, not one containing magnetic pyrites has shown any gold, and so-called gold mines have been condemned at once when the character of the pyrites was recognized, subsequent assay always corroborating the opinion. It was therefore not a matter of surprise that these "gold ores" did not contain any gold.

A careful study of the region above described, and of the rocks and ores brought out, forces on the writer the conviction that this deposit of iron is the representative on the north shore, of the Michigan and Wisconsin iron deposits. There can be no doubt that the regions described belong to the Huronian. The rocks are many of them typical Huronian rocks, and the whole Mesabi district presents such a strong likeness to the Penokee in all particulars as to make its identity indisputable. That the Vermilion deposits are simply a continuation of the same formation seems also to be a fact. The intricate foldings of the strata account for their vertical position, and the rocks are so nearly like those of Mesabi and bear such similar relations to the Laurentian granites and slates, as to convince one of their identity. The peculiar replacement of the schists by red oxide of iron, forming beds of soft hematite entirely similar to certain deposits found at Marquette, and the very siliceous limestone common in this region, and similar in character as well as in mode of occurrence to beds found in Marquette, Penokee and Menominee, are facts with a plain signification.

The geological similarity of the Vermilion iron deposits to those of Marquette, is the impressive fact to be noticed by the people of Minnesota, and it is safe to predict the development there of an iron district of immense value and importance.

This paper should not be closed without an expression of thanks to professor Roland D. Irving, of Madison, Wis., to whom all the rocks were sent to be examined, and whose notes on these examinations were placed freely at the service of the writer. Thanks are also due to Mr. George C. Stone, of St. Paul, General Manager of the Minnesota Iron Co., who planned the expeditions, and aided in every way to their successful completion; and to the veteran surveyor, explorer and geologist, Mr. George R. Stuntz, whose experience in all these lines was invaluable.

Hamilton College, July 11th, 1883.

VI.

NOTE ON THE AGE OF THE ROCKS OF THE MESABI AND VERMILION IRON DISTRICTS.

BY N. H. WINCHELL.

In the report for 1878 (p. 10) the rocks of the iron-bearing belts of Vermilion lake and of the Mesabi range were parallelized with the Gunflint beds of the northern boundary, the latter being the lowest portion of the great slate-and-quartzyte group which had before been designated the Animikie group by Dr. T. Sterry Hunt.

In the report for 1880 (p. 81) the Gunflint beds are stated to be a graduation downward of the slate-and-quartzyte group; and in the same report (p. 82) the slate-and-quartzyte group is described as overlying unconformably (apparently) another formation made up o greenish schists, entirely a distinct formation, the two being separated by a conglomerate or conglomerate-breccia, the lower formation being supposed to be that which has been styled the Huronian by the Canadian geologists. This greenish magnesian schistose formation is traced, through some variation, westward along the strike of the formation as far as the east end of Basswood lake and to the Pipestone rapids (p. 91), one of its chief localities being at the mouth of the Kawasachong river. It perhaps extends to Vermilion lake (p. 95), and occupies the central portion of the lake, including Ely island. But the rocks at the south end of the lake are apparently of the slate-and-quartzyte group, which here exhibits a true slaty structure (p. 97, Nos. 389-394); while those at the north end consist of a mica-schist, embracing lenticular masses of granite (p. 100.) In the same report the iron ore of the Vermilion lake district is stated to be in the horizon of the Gunflint beds, and to lie directly on the foregoing supposed Huronian schists. (p. 103-4.)

In the report for 1881 (p. 95) various considerations are mentioned that go to show that the slate-and-quartzyte group of the northern boundary becomes the tilted slates and gray quartzytes of Ogishke Muncie lake, and of the region of Thomson on the St. Louis river; and also that there is a red granite overlying the slate-and-quartzyte group north from Grand Marais (pp.74-79), as well as in the region south from Ogishke Muncie lake (pp. 99-102.) In the same report the slate-and-quartzyte group (the Animikie) is parallelized with the Taconic group of professor Emmons (p. 135).

In the geological reports of Wisconsin, issued recently by professor Chamberlin, the rocks of the Penokee iron range have been classed as Huronian by professor Irving (*Geol. of Wis.*, vol. iii.; p. 104.) The same reports have referred the Thomson slates and quartzytes of Minnesota to the Huronian (vol. iii., plate IX.), as well as the red quartzytes and felsytes of central Wisconsin. Professor Irving has also, more lately, stated unqualifiedly and without reserve that the Animikie rocks of the northern boundary are Huronian. (*Science*, May 4, 1883.)

In Michigan, major Brooks has placed the Marquette iron-bearing rocks in the Huronian (*Geol. Sur. of Mich.*, vol. i.; p. 66) and has described (Table iii., *Geol. of Wis.*, vol. iii.; p. 450) the "newest Huronian," as consisting of a red granite; and Dr. C. Rominger has described a conversion from horizontal slates to tilted slates, similar to that above referred to as probable in Minnesota, the two having been regarded before as different.

Quite recently Dr. T. S. Hunt, in a paper on the *Taconic question in geology*, published in the *Transactions of the Royal Society of Canada*, has not only maintained the Taconic age of the Animikie rocks but has adopted their supposed conversion into the tilted slates and quartzytes suggested by the writer in 1881, and extends them southwestward to Thomson on the St. Louis river, where he states that by the aid of Dr. J. W. Dawson he has discovered a fossil keratose sponge in some dark calcareous concretions.

If all these facts and opinions be brought to bear on the interpretation of the stratigraphy of northern Minnesota, while they cannot all be reconciled so as to make perfect harmony, the most probable result, in the opinion of the writer, would be as follows, in descending order:

Potsdam formation.	Tilted red sandstones, shales and conglomerates, changed by igneous gabbros and dolerytes locally to red quartzytes, felsytes, quartz-porphyries and to red granite. The Keweenian, and the Huronian in part, in Wisconsin.
Taconic group.	Horizontal black slates and gray quartzytes, with interbedded limestones and diorytes (the Animikie group.) changed to tilted slates, quartzytes, iron ores, and siliceous marble. The Gunflint beds, the Mesabi iron rocks, the Ogishke Muncie conglomerate (?), the Thomson slates and quartzytes, the Vermilion iron rocks;—the Huronian in part, Wisconsin and Michigan.
Huronian group?	Magnesian, greenish, soft schists, becoming syenitic and porphyritic. Seen on the north side of Gunflint lake, along the international boundary at Basswood lake, and at Vermilion lake. The Huronian in part, in Wisconsin and Michigan.
Montalban?	Mica schists, and micaceous granite, the latter lenticular within the former, at the outlet of Vermilion lake—probably also at "Granite City" in Morrison county, and at Pike rapids on the Mississippi. The Huronian in part, in Wisconsin and Michigan.
Laurentian.	Massive hornblende gneiss, gray to nearly white, rarely reddish. The international boundary north of Gunflint lake to Saganaga lake and westward; also probably the Watab and Saint Cloud "granites."

VII.

CHEMICAL ANALYSES.

REPORT OF PROF. J. A. DODGE.

CHEMICAL LABORATORY, UNIVERSITY OF MINNESOTA,
MINNEAPOLIS, Nov 28, 1883.

Prof. N. H. Winchell:

DEAR SIR: I herewith report the following analyses of minerals and waters for the geological survey.

Chem. series, No. 84. A dark brown rock, with fossils, and a concretionary appearance. This was tested at your request, for phosphoric acid. No phosphoric acid was found.

Chem. series, No. 85. A reddish concretionary mineral, in small lumps, appearing like a zeolite. The sample taken for analysis was selected, after partly breaking up the lumps, so as to be as homogeneous as possible. Its composition was as follows:

			Oxygen.		Oxygen ratios.
Silica,	62.73	per cent.	33.45		14.61
Alumina,	13.62	" "	6.35	6.87	3.00
Oxide of iron,	1.75	" "	.52		
Lime,	5.87	" "	1.67	2.52	1.10
Magnesia,	0.65	" "	.26		
Soda,	1.83	" "	.48		
Potash,	0.68	" "	.11		
Water	12.25	" "	10.89		4.71
	99.38				

The composition seems to bring this mineral under the species *mordenite*.

Chem. series, No. 86. A nearly white, concretionary, zeolitic mineral. Composition as follows:

			Oxygen.		Oxygen ratios.
Silica,	47.25	per cent.	25.19		6.47
Alumina,	24.78	" "	11.54	11.68	3.00
Oxide of iron,	0.48	" "	.14		
Lime,	1.23	" "	.35	4.52	1.16
Magnesia,	0.71	" "	.28		
Soda,	15.05	" "	3.19		
Potash,	traces.	" "			
Water,	10.37	" "	9.22		2.37
	99.87				

The composition seems to refer this mineral to the species *natrolite.*

ANALYSES OF A SERIES OF WATERS.

Chem. series, No. 126. Analysis of water from the Red river of the North at St. Vincent, collected June 10th, 1882; analyzed in first part of September, 1882, having been in the mean time kept in glass bottles.

Composition of residue from evaporation.

	Parts to 1,000,000.	Percentage.	Grains per gallon.
Silica,	13.0	4.6	0.75829
Oxide of iron and alumina,	1.0	.4	0.05833
Carbonate of lime,	97.8	34.3	5.70467
Sulphate of lime,	35.7	12.6	2.08238
Nitrate of lime,	1.1	.4	0.06416
Carbonate of magnesia,	81.9	28.7	4.77723
Phosphate of lithia,	.6	.2	0.03499
Sulphate of potash,	8.7	3.1	0.50747
Nitrite of potash,	traces.		
Bromide of potassium,	traces.		
Sulphate of soda,	21.7	7.6	1.26576
Chloride of sodium,	22.9	8.1	1.33576
	284.4	100.0	16.58904

Iodine was found to be absent. A test for organic matter was made by the permanganate method (Tidy's). The oxygen required for oxidation was 3.5 per million. The hardness was found to be 19 degrees of Wanklyn's scale. The water is notable for its hardness, owing to the sulphate of lime and the carbonates.

The above analysis was made by Wm. A. Noyes.

Chemical series, *No. 127.* Analysis of water from the Red river of the North at Fergus Falls; collected in June, 1882, analyzed in Sept., 1882.

Composition of residue from evaporation.

	Parts to 1,000,000.	Percentage.	Grains per gal.
Silica,	14.3	7.0	0.83412
Alumina and oxide of iron,	1.2	.6	0.06999
Carbonate of lime,	101.0	50.0	5.89133
Carbonate of magnesia,	71.4	35.4	4.16476
Carbonote of lithia,	traces.		
Carbonate of potash,	4.2	2.1	0.24919
Bromide of potassium,	traces.		
Nitrate of potash,	traces.		
Nitrite of potash,	traces.		
Carbonate of soda,	5.8	2.8	0.33831
Sulphate of soda,	1.8	.9	0.10499
Chloride of sodium,	2.3	1.2	0.13456
Total,	202.0	100.0	11.78725

Iodine, absent; phosphoric acid, traces. Test with permanganate (Tidy's), showed 1.4 parts oxygen consumed by organic matter per million parts water. The hardness was found to be 9.5 degrees.

Analyzed by Wm. A. Noyes.

Chemical series No. 128. Analysis of water from Heron lake; collected in June, 1882; analyzed in Sept., 1882.

Composition of residue from evaporation.

	Parts per 1,000,000.	Percentage.	Grains per gal.
Silica,	7.1	2.6	0.41414
Alumina and oxide of iron,	1.7	.6	0.09916
Carbonate of lime,	102.7	37.7	5.99049
Sulphate of lime,	47.9	17.6	2.79241
Nitrate of lime,	5.0	1.8	0.29165
Carbonate of magnesia,	76.3	28.0	4.45058
Carbonate of lithia,	traces		
Sulphate of potash,	8.0	3.0	0.46664
Nitrite of potash,	traces		
Sulphate of soda,	18.5	6.8	1.07911
Chloride of sodium,	5.1	1.9	0.29748
Total,	272.3	100.0	15.88166

Iodine, absent; bromine, absent; phosphoric acid, absent.

Test with permanganate showed 2.6 parts oxygen consumed by organic matter per 1,000,000 water.

Hardness, 22 degrees. The water is notable for excessive hardness, due to sulphate of lime and carbonates of lime and magnesia.

Analysis by Wm. A. Noyes.

Chem. series, No. 129. Analysis of water from Pigeon river falls; collected in Aug., 1882; analyzed in Sept., 1882.

Composition of residue from evaporation.

	Parts per 1,000,000	Percentage.	Grains per gal.
Silica,	7.2	14.2	0.41998
Alumina and oxide of iron,	.8	1.6	0.04666
Carbonate of lime,	23.0	45.2	1.34159
Carbonate of magnesia,	10.2	20.0	0.59497
Carbonate of lithia,	traces		
Carbonate of potash,	.7	1.4	0.04083
Nitrate of potash,	traces		
Sulphate of potash,	2.0	3.9	0.11666
Sulphate of soda,	1.9	3.7	0.11083
Chloride of sodium,	5.1	10.0	0.29748
	50.9		2.96740

Iodine and bromine, absent; nitrites, absent; phosphates, absent; borates, absent.

Test with permanganate showed 3.6 parts oxygen consumed by organic matter per 1,000,000 water.

Hardness, 3.3 degrees. The degree of hardness is low.

Analysis by Wm. A. Noyes.

Chem. series, No. 130. Analysis of water from lake Superior at Grand Marais; collected and analyzed in Sept., 1882.

Composition of residue from evaporation.

	Parts per 1,000,000.	Percentage.	Grains per gal.
Silica,	.5	1.1	0.02917
Alumina and oxide of iron,	traces.		
Carbonate of lime,	30.8	67.4	1.79656
Carbonate of magnesia,	9.1	19.9	0.53080
Carbonate of lithia,	traces.		
Carbonate of potash,	1.9	4.2	0.11083
Nitrate of potash,	.2	.5	0.01167
Nitrite of potash,	minute traces.		
Carbonate of soda,	.5	1.1	0.02917
Sulphate of soda,	.6	1.3	0.03499
Chloride of sodium,	2.1	4.5	0.12249
Total,	45.7	100.0	2.66568

Iodine and bromine, absent; phosphates and borates, absent.

Test with permanganate showed 0.35 parts oxygen consumed by organic matter per 1,000,000 water.

Hardness 3.5 degrees.

The water is remarkable for its purity, especially organically.

Analysis by Wm. A. Noyes.

Chem. series, No. 131., Analysis of water of artesian well at Carman, Polk county, October, 1882.

Composition of residue from evaporation.

	Parts per 1,000,000.	Percentage.	Grains per gal.
Silica,	26.2	5.7	1.529
Alumina and oxide of iron,	1.5	.3	.087
Carbonate of lime,	88.6	19.4	5.171
Carbonate of magnesia,	52.9	11.6	3.087
Carbonate of lithia,	traces.		
Carbonate of potash,	11.5	2.5	.671
Nitrite of potash,	traces.		
Carbonate of soda,	73.8	16.2	4.308
Sulphate of Soda,	47.5	10.1	2,773
Borax,	traces.		
Chloride of sodium,	156.5	34.2	9.134
Bromide of potassium,	traces.		
Iodide of potassium,	traces.		
Total,	458.5	100.0	26.760

Nitrates, absent; phosphates, absent.

Test with permanganate showed 0.85 parts oxygen consumed by organic matter per 1,000,000 water.

Hardness, 12.5 degrees.

The water is remarkable for the large amounts of carbonate of soda and chloride of sodium.

Analysis by Wm. A. Noyes.

Chem. series, No. 132. Analysis of water from Minnesota City, October, 1882.

Composition of residue from evaporation.

	Parts per 1,000,000.	Percentage.	Grains per gal.
Silica,	16.3	5.2	0 .95078
Alumina and oxide of iron,	2.5	.8	0.14583
Carbonate of lime,	182.0	57.7	10.61606
Carbonate of magnesia,	104.3	33.0	6.08382
Carbonate of lithia,	traces.		
Carbonate of potash,	1.6	.5	0.09333
Sulphate of potash,	.7	.2	0.04083
Nitrite of potash,	traces.		
Sulphate of soda,	7.7	2.4	0.44914
Chloride of sodium,	.5	.2	0.02917
Total,	315.6	100.0	18.40896

Iodine and bromine, absent; phosphates, traces; borates, absent.

Hardness 11.5 degrees.

The sample of water whose analysis is above given, also contained sulphuretted hydrogen gas. A second sample received later gave no reaction for sulphuretted hydrogen.

Analysis by Wm. A. Noyes.

Chem. series, No. 133. Analysis of water from Rock river; collected and analyzed in November, 1882.

Composition of residue from evaporation.

	Parts per 1,000,000.	Percentage.	Grains per gal.
Silica,	21.0	7.6	1.22493
Alumina,	1.0	.4	0.05833
Oxide of iron.	8.8	3.2	0.51330
Carbonate of lime,	136.0	49.6	7.93288
Sulphate of lime,	6.4	2.3	0.37332
Nitrate of lime,	traces.		
Carbonate of magnesia,	70.4	25.7	4.10643
Phosphate of lithia,	minute traces.		
Sulphate of potash,	3.3	1.2	0.19249
Sulphate of soda,	25.6	9.3	1.49325
Chloride of sodium,	2.0	.7	0.11666
Total,	274.5	100.0	16.01158

Iodine and bromine, absent; phosphates, minute trace; borates, absent. Test by permanganate showed 1.1 parts oxygen consumed by organic matter per 1,000,000 water.

Hardness, 17 degrees.

The water is notable for the large amount of iron.

Analysis by Wm. A. Noyes.

Chemical series, No. 137. An oolitic substance of a brown color, evidently consisting largely of oxide of iron. On further examination it was found that this iron compound formed the superficial part of each granule in the mass, while the interior of each granule consisted of carbonate of lime. The substance was accordingly treated as follows. After pulverizing, it was treated with cold dilute hydrochloric acid, which removed the carbonate of lime. The remaining brown matter was washed and digested in strong hydrochloric acid; this treatment brought all into solution with the exception of some siliceous matter of a nearly white color. The amount of iron in this solution was determined. The amount of combined water in the brown matter was also determined. The results of these determinations are here given:

Siliceous matter	10.53	per	cent.
Oxide of iron	71.35	"	"
Water	11.98	"	"

The oxide of iron and the water are in the same ratio as in limonite, $2Fe_2O_3\ 3H_2O$. Hence it was concluded that the brown coating on the granules of the oolitic substance was limonite.

Work chiefly done by W. A. Noyes.

Chemical series, No. 138. A specimen of rock from Mankato, near the Red Jacket railroad bridge, as stated on label.

The sample was of a nearly white color and fine-grained, somewhat friable.

The result of the analysis is as follows :

Silica,	93.65	per cent.
Alumina,	2.15	" "
Oxide of iron	.25	" "
Lime,	.20	" "
Magnesia,	.12	" "
Potassa,	traces.	
Soda,	traces.	
Water,	2.25	" "
	98.62	

The analysis was made by Mr. C. F. Sidener.

The specimen, as indicated by the label, was furnished by J. G. Koller, of Mankato.

Chemical series, No. 139. A specimen of rock from the same locality as the last, furnished by J. G. Koller of Mankato.

The sample was of a light red color, fine-grained and somewhat friable.

The result of the analysis is as follows:

Silica,	73.34	per cent.
Oxide of iron,	5.45	" "
Alumina,	14.75	" "
Lime,	.28	" "
Magnesia,	.05	" "
Potassa.	traces.	
Soda,	traces.	
Water,	4.71	" "
	98.58	

The analysis was made by C. F. Sidener.

Chemical series, No. 140. A sample of a loose and friable, rather coarse-grained sandrock of a greenish brown color, furnished by Mr. ——— Norton from a point in the western suburbs of Minneapolis in proximity to certain springs highly charged with iron.

Only a partial analysis of the material was made. The material was first rubbed to a state of loose sand with water, and then submitted to a process of elutriation, in which several quantities of liquid containing finely suspended matter were obtained. These were permitted to subside, the sediment still retaining to some extent the greenish tinge of the original mass. A quantity of the finest part of this sediment, after being air-dried, was submitted to a partial analysis. It lost on ignition 18.39 per cent., water and organic matter. The remainder was found to contain 45.56 per cent. oxide of iron, the balance being finely divided sand and clay.

Microscopic examination of the same subsided matter showed a nearly homogeneous mass of very fine, rounded, light-brown particles, with here and there greenish, irregular, flat objects which were judged to be portions of some low vegetable growth.

It was concluded that the peculiar color of the mass as found was due to the vegetable matter distributed over and through it and to the brown oxide of iron, and not to any special mineral substance.

Examination of this substance by J. A. Dodge.

Chemical series, No. 141. Sample of the water of lake Minnetonka.

This sample of water was taken about half way between Excelsior and Morse's island, May 21st, 1883, by Mr. Wm. A. Noyes. The analysis was begun immediately and was completed about the first of June. The results of the chemical analysis are as follows:

	Parts per million.	Grains per gallon.
Silica,	4.8	2.8
Iron,	traces.	
Calcium carbonate,	70.0	4.088
Magnesium carbonate,	27.7	1.618
Lithium carbonate,	traces.	
Potassium nitrate,	traces.	
Potassium carbonate,	4.5	.263
Sodium carbonate,	1.4	.082
Sodium phosphate,	traces.	
Sodium chloride,	1.3	.076
Borax,	traces.	
Sodium sulphate,	traces.	
	109.7	6.407

The amount of dissolved salts is on the whole rather small. It is remarkable for the almost total absence of sulphates. The water was also found to be very pure organically, the permanganate test of Forschammer and Tidy indicating very little organic matter.

The analysis was made by W. A. Noyes.

Chemical series, No. 142. Sample of water from Hunter's Hot Springs, Montana. This analysis was made in the early part of June, 1883. The results are as follows:

	Parts per million.	Grains per gallon.
Silica,	77.4	4.517
Alumina,	1.2	.070
Oxide of iron,	traces.	
Carbonate of lime,	4.0	.233
Magnesium carbonate,	traces.	
Lithium carbonate,	traces.	
Potassium carbonate,	5.5	.321
Sodium carbonate,	150.5	8.785
Sodium chloride,	24.7	1.442
Sodium bromide,	traces.	
Sodium iodide,	traces.	
Sodium sulphide,	14.6	.852
Sodium sulphate,	10.4	.607
Sodium phosphate,	traces.	
Sodium biborate (borax),	traces.	
	288.30	16.827

The analysis was made by W. A. Noyes.

Chemical series, No. 143. Sample of a spring water from Inglewood (west of Minneapolis), furnished by Mr. Geo. P. Bradbury. This analysis was made in the early part of July. The results are as follows:

	Parts per million.	Grains per gallon.
Silica,	20.9	1.22
Oxide of iron and alumina (the latter in very small amount),	.2	.012
Calcium carbonate,	167.8	9.794
Calcium sulphate,	2.0	.117
Calcium nitrate,	minute traces.	
Calcium phosphate,	traces.	
Magnesium carbonate,	80.4	4.693
Lithium carbonate,	traces.	
Sodium sulphate,	8.3	.485
Sodium chloride,	1.3	.076
Potassium sulphate,	2.9	.169
Total determined,	283.8	16.566

This water has a considerable amount of salts in solution. Analyzed by W. A. Noyes.

Chemical series, No. 144. Sample of the material used at Mankato for making hydraulic cement. This material is of fine granular texture, and of a very light grey color.

The powdered substance was digested in hydrochloric acid, whereby the greater part of it was dissolved with effervescence due to the escape of carbonic acid gas. The composition of the insoluble and the soluble portions is as follows:

Insoluble in HCl.		
Silica,	16	per cent.
Alumina,	5	per cent.
Potash,	traces.	
Soda,	traces.	
	21.00	

Soluble in HCl.			
Silica,	traces.		
Alumina,	.85	per	cent.
Oxide of iron,	2.73	"	"
Calcium carbonate,	40.00	"	"
Magnesium carbonate,	31.50	"	"
Potash,	.22	"	"
Soda,	.54	"	"

Combined.

Insoluble,	21.00	per	cent.
Soluble,	75.84	"	"
Water,	.43	"	"
	97.27		

The soluble portion is seen to be mainly carbonate of lime and carbonate of magnesia, with some oxide of iron, while the insoluble portion is silicate of alumina.

Analysis by C. F. Sidener.

Chemical series, No. 145. Sample of hydraulic cement made at Mankato.

This material was found to effervesce very little with hydrochloric acid. It was accordingly analyzed as a silicate, by fusion, in the usual manner. The result of the analysis is as follows:

Silica,	16.24	per	cent.
Alumina,	5.35	"	"
Oxide of iron,	4.71	"	"
Lime,	38.53	"	"
Magnesia,	22.73	"	"
Potash,	1.81	"	"
Soda,	.57	"	"
Water.	.51	"	"
Carbonic acid,	9.26	"	"
	99.71		

Analysis by C. F. Sidener.

Chemical series, No. 146. A sample of clay of a light color, compact and dry.

This was analyzed by fusion in the usual manner for silicates. The result of the analysis is as follows:

Silica,	68.70	per cent.
Alumina,	18.04	" "
Oxide of iron,	1.53	" "
Lime,	1.24	" "
Magnesia,	.56	" "
Potash,	5.28	" "
Soda,	.24	" "
Phosphoric oxide,	.09	" "
Water,	1.40	" "
Organic matter,	traces.	
	97.08	

The material is rather remarkable for containing so much potash, which probably exists in it in the form of finely divided potash feldspar.

On ignition this clay changes only a little in color, becoming slightly brownish.

Analysis by C. F. Sidener, mainly.

Very respectfully yours,
JAMES A. DODGE.

NOTE. The foregoing substances were derived as follows:

No. 84. Was furnished by Mr. James M. Young. It was from the drift, and had the appearance of being similar to the phosphatic nodules derived from the Cretaceous in South Carolina. It was found at the main Two rivers, in Morrison county, a locality where the Cretaceous strata are known to exist. Mus. Reg. No. 4711.

No. 85. Zeolitic mineral from the trap rocks of the north shore of Lake Superior, Sec. 29, T. 57,6, a few miles west of Little Marais. It is number 634 A, of the geological survey series of crystalline rocks. Tenth annual report, p. 63.

No. 86. From Beaver Bay; found filling thin seams in the feldspar masses, from one-fourth to one-half an inch thick. It is a light flesh-colored, zeolitic mineral, with a radiated structure; corresponds to No. 637 A, of the series for the crystalline rocks. Tenth annual report, p. 64.

No. 126. Water from the Red river of the North, at Saint Vincent. Collected June 10, 1882, by Mr. C. F. Sidener.

No. 127. Water from the Red river the North at Fergus Falls. Collected by Mr. Sidener, June, 1882.

No. 128. Water from Heron lake, Jackson county. Collected in June, 1882, by Mr. C. F. Sidener.

No. 129. Water from the falls of Pigeon river; obtained through Mr. Henry Mayhew, August, 1882.

No. 130. Water from lake Superior, near Grand Marais; obtained through Mr. Henry Mayhew, September, 1882.

No. 131. Water from an artesian well at Carman in Polk county; obtained through chief engineer C. C. Smith, Sept. 1882.

No. 132. Water from the mineral spring of C. F. Bryan, near Minnesota City. Collected in September, 1882. From Mr. C. F. Bryan.

No. 133. Water from the Rock river, sec. 19, T. 103, 44, near Luverne, Rock county; obtained through Hon. J. P. Kniss, November, 1882.

No. 137. Oölitic ferruginous rock from the Trenton, or Hudson River shales, fossiliferous, at the horizon of the *green shales*, at the railroad cut near Fountain, Fillmore county. Mus. Reg. No. 4978.

No. 138. Sample from the clay lying between the Shakopee limestone and the Jordan sandstone, immediately south of the Red Jacket railroad bridge, near Mankato, Blue Earth county. Furnished by Mr. J. G. Köller.

No. 139. Same as the last, but of a red color.

No. 140. Greenish, ferruginous, somewhat gritty substance, found about six feet below the natural surface, on land of W. W. Norton, near Minneapolis, or in a ditch by the roadside, about a mile north of Minnehaha creek, in the extension of Park avenue, in the valley of drainage from a marsh to Minnehaha creek, occurring somewhat as a bog ore.

No. 141. Water from lake Minnetonka, obtained by Wm. A. Noyes, May 21, 1883.

No. 142. Water from Hunter's Hot springs, Montana, furnished by Dr. Hunter, June, 1883.

No. 143. Water from a natural spring at Inglewood (west of Minneapolis), furnished by Mr. George P. Bradbury, June, 1883.

No. 144. Hydraulic limestone, used by the Standard Cement company, at Mankato, selected by the superintendent. Oct. 1883.

No. 145. Hydraulic lime, manufactured from the strata of the Shakopee formation, by the Standard Cement company at Mankato. Furnished by the superintendent.

No. 146. White clay, lying between the Shakopee limestone (dislodged) and the Jordan sandstone, on L' Huillier mound, at the mouth of the Blue Earth river.—N. H. WINCHELL.

VIII.

MUSEUM REPORT FOR 1882.

During the year 1882 the usual increase has been made in the collections of the museum. Four hundred and sixty-four entries have been made in the register. Some of these entries, as heretofore, are for the purpose of preserving records of specimens that are yet to undergo scientific examination, and are not enumerated in the following list of registrations. They have, however, been labeled and numbered to correspond with the records. These unnamed specimens are derived largely from the geological survey. The others are entered in the register under the names which they have when they come to us, unless known to be wrong, whether presented or obtained by exchange.

Exchanges have been made with Prof. C. U. Shepard, John H. Goodale, Prof. S. Calvin, and Dr. J. W. Hood.

The principal donors to the museum registered in 1882 were Dr. E. S. Dana, Gen. H. H. Sibley, Lieut. A. W. Vogdes, A. J. Noyes, F. D. Anthony, N. H. Winchell, Cora E. Goode, W. J. McGee, W. H. Shelton, C. L. Herrick, J. C. Kassube and Horace V. Winchell. All these donations, and others, are enumerated in the following list.

SPECIMENS REGISTERED IN THE MUSEUM IN 1882.

Serial Number.	OBTAINED.		NAME.	No. of Specimens.	Locality.	Formation	Collector and Remarks.
	When.	Whence.					
4691	1882	C. U. Shepard	Meteoric Iron wt., 41.5 grs	1	Aeriotopos, Col.		By exchange with Prof. C. U. Shepard.
4692	"	"	" " " 7.05 "	1	Morro do Rizio (Santa Catarina), Brazil		By exchange with Prof. C. U. Shepard.
4693	"	"	" " " 6.2 "	2	Putnam Co., Georgia		By exchange with Prof. C. U. Shepard.
4694	"	"	" " " 105.6 "	2	Toluca, Mexico		By exchange with Prof. C. U. Shepard.
4695	"	"	" " " 5.4 "	1	Mejillones, Chili		By exchange with Prof. C. U. Shepard.
4696	"	"	" " " 3.8 "	S'v'rl	Zacatecas, Mexico		By exchange with Prof. C. U. Shepard.
4697	"	"	" Stone " 0.4 "	1	Vouille, France		By exchange with Prof. C. U. Shepard.
4698	"	"	" " " 3.1 "	1	Cabarras, N. C.		By exchange with Prof. C, U. Shepard.
4699	"	"	" " " 2.4 "	P'wr'd	Bishopville, S. C.		By exchange with Prof. C. U. Shepard.
4700	"	Presented	Incrustation from Giant Geyser	1	National Park	Recent	From Frank Bush ; presented by Prof. H. S. Baker.
4701	"	"	"Satin spar," rose-colored	1	Monument Park, Col.		Presented by Dr. A. F. Elliott.
4702	"	"	Pyrargyrite ("ruby silver")	1	Georgetown, Col.		" " " " "
4703	"	By purchase	"Rock soap"	1	Near San Buenaventura, Cal.		From I. F. Saxly, obtained through Rev. C. B. Sheldon.
4704	1881	By exchange	Staurolite crystals	Indf.			From Prof. C. U. Shepard.
4705	"	"	Staurolite, twinned & intergrown crystals	"			" " " "
4706	1882	Presented	Sandstone	3	Dresbach	St. Croix	Presented by J. S. Tostevin, of St. Paul.
4707	"	"	Columbite, fine crystals	1	Branchville, Conn.		Presented by Dr. Edw. S. Dana of Yale College.

4708	1882	Presented	Columbite crystals with calcite	2	Branchville, Conn		Presented by Dr. Edw. S. Dana, of Yale College.
4709	"	"	" .massive	1	" "		Presented by Dr. Edw. S. Dana, of Yale College.
4710	"	"	Chalcopyrite crystals, on quartz	1	" "		Presented by Dr. Edw. S. Dana, of Yale College.
4711	"	Geol.&Nat. Hist. Survey	Phosphatic, (?) ferruginous nodule	1	Main Two Rivers, Mor. Co	Drift from the Cret.	Presented by James M. Young.
4712	"	Presented	Silicified wood	10	Valley of the Yellowstone, Montana		Presented by Gen. Sibley.
4713	"	"	Opal and chalcedony fragments	16	Ofallon creek, Montana		" " " "
4714	"	"	Quartz (chalcedony) fragments	10	Mouth of Green river, Dak		" " " "
4715	"	"	Pyrite concretions	2	Near Sentinel Butte		" " " "
4716	"	"	Gypsum	1	Heart river, Dakota		" " " "
4718	"	"	"Horn Silver"	1	Tin Cup Mining Dist'ct, Gunnison Co., Col		" " J. W. Bird.
4719	"	"	Oolyte	2	Stillwater		" " A. D. Roe.
4720	"	By exchange	Andalusite (chiastolite)	5	Lancaster, Mass		From John H. Goodale.
4721	"	"	Claystones (concretions in clay, modified drift)	8	Headwaters of the Connecticut river in N. H.	Recent	" " "
4736	"	Presented	Deposit from Castle Geyser	1	Yellowstone Nat. Park	"	Presented by D. P. Jones.
4737	"	"	Deposit from hot springs	6	Mt. Johnson, near Gibbon Geyser Basin, Yellowstone Nat. Park		" " A. J. Noyes.
4738	"	"	" " " "	1	Yellowstone Nat. Park		" " "
4739	"	"	" " " "	1	" " "		" " "
4740	"	"	" " " "	5	" " "		" " "
4741	"	"	" " " " ("Paint-pots")	8	" " "		" " "
4742	"	"	Horse-shoe, coated by the Mammoth Sp'g	1	" " "		" " "
4743	"	"	"Geyser-egg" (pencil-writing indelible)	1	" " "		" " "
4744	"	"	Sulphur, crystalline	4	Sulphur Mt., 12 miles above the Great F'lls of the Yellowstone, in the National Paak		" " "
4745	"	"	Obsidian	1	Obsidian Mtn., Yellowstone Nat. Park		" " "
4746	"	"	Silicified wood	2	Yellowstone Nat. Park		" " "
4747	"	"	Gold-bearing quartz	2	Bear Gulch, 6 ms. S. of the Yel. Nat. Park, Wyoming		" " "
4748	"	"	Silver and Gold,—(the latter "retort")	Indef	Summit Valley dis'ct, S'lv'r Bow Co., Mont'a		" " "
4749	"	"	Silver ore, Original mine	3	" " "		" " "
4750	"	"	" " Gagnon lode	2	" " "		" " "
4751	"	"	" " Bell mine	1	" " "		" " "
4752	"	"	" " Star West mine	3	" " "		" " "

Specimens registered in the museum in 1882.—Continued.

Serial Number.	OBTAINED.		NAME.	No. of Specimens.	Locality.	Formation	Collector and Remarks.
	When.	Whence.					
4753	1882	Presented	Silver ore, Star West mine	2	Summit Valley disc't, S'lv'r Bow Co., Mont'a		Presented by A. J. Noyes.
4754	"	"	" " Anselmo mine	3	" " "		" " "
4755	"	"	" " Mountain Boy mine	2	" " "		" " "
4756	"	"	" " Trarona mine	1	" " "		" " "
4757	"	"	" " Black Chief mine	1	" " "		" " "
4758	"	"	" " Vulcan mine	1	" " "		" " "
4759	"	"	" " Alice mine	1	" " "		" " "
4760	"	"	*Graptolithus pristis*, Hall	3	Near Sandy Hill, N. Y.	Utica Sl'te	" " Prof. C. W. Hall.
4761	"	"	Iron ore, hematite; Mastodon mine	1	Mastodon, Mich., Lake Superior region		" " F. D. Anthony.
4762	"	"	" " " Porteos Explorat'ns.	1	Near Mastodon, Mich., L. Superior region		" " "
4763	"	"	" " " Carry mine	1	Near Vulcan, Mich., L. Superior region		" " "
4764	"	"	" " " Cascade mine	1	Cascade, Mich., Lake Superior region		" " "
4765	"	"	Iron ore, hematite; Quinnesec mine	1	Quinnesec, Mich., L'ke Superior region		" " "
4766	"	"	" " " ("steel ore") Cleveland mine	1	Ishpeming, Mich., L. Superior region		" " "
4767	"	"	Iron ore, hematite; Cleveland mine	3	" "		" " "
4768	"	"	" " " ("slate ore"). N. Y. mine	1	" "		" " "
4769	"	"	From Ropes Gold and Silver mine	3	" "		" " "
4770	"	"	Core from diam'd drill, 400 ft. b'l'w surface	4	" "		" " "
4771	"	"	Iron ore, hematite, South Republic mine	1	Near Republic, Mich., L. Superior region		" " "
4772	"	"	" " " Breen mine	2	Wancedale, Mich., L'ke Superior region		" " "
4773	"	"	" " " Metropolitan mine	1	Metropolitan, Mich. Felch Mt. range, L Superior region		" " "

4774	1882	Presented	" " "		8	Felch Mt., Mich., L. Superior region		Presented by F. D. Anthony.
4775	"	"	Quartz (jasper)		1	" "		" " "
4776	"	"	Marble		1	" "		" " "
4777	"	"	Iron ore, hematite, covered by botryoidal limonite		1	Superior mine. Ishpeming, Mich., L. Superior region		" " "
				[Prof. S.'s No.				
4778	Oct. 3, '82	By exchange	Pihlite (cymatolite)	2322	1	Chestfield, Mass		From Prof. C. U. Shepard.
4779	"	"	Serpentine (chrysotile) in deweylite	2323	1	Templeton, Canada		" " "
4780	"	"	Apatite, red-brown	2324	1	Grattan, Ontario, Can		" " "
4781	"	"	Chalcophanite on hetærolite	2325	1	Sparta, New Jersey		" " "
4782	"	"	Hematite and Quartz	2326	1	Fowler, N. Y		" " "
4783	"	"	Garnet (uwarowite) on nickeliferous augite	2327	1	Wakefield, Canada		" " "
4784	"	"	Psilomelane	2328	1	Woodstock, Alabama		" " "
4785	"	"	Hausmannite	2329	1	Ilmenau, Thuringia		" " "
4786	"	"	Uraninite and gummite	2330	1	Mitchell Co., N. C.		" " "
4787	"	"	Apatite (yellow)	2331	1	Odegarden, Norway		" " "
4788	"	"	Cancrinite and bluish green nephelite (elæolite)	2332	1	Litchfield, Maine		" " "
4789	"	"	Libethenite	2333	1	Cornwall, England		" " "
4790	"	"	Celestite	2334	1	Bristol, England		" " "
4791	"	"	Vesuvianite (cyprine) and zoisite (thulite)	2335	1	Tellemark, Norway		" " "
4792	"	"	Crocidolite	2336	1	Templeton, Canada		" " "
4793	"	"	Anthophyllite, with chalcopyrite and pyrrhotite	2337	1	Villa Rica, Georgia		" " "
4794	"	"	Cuprite	2338	1	Ural Mts		" " "
4795	"	"	Celestite	2339	1	Herrengrund, Hungary		" " "
4796	"	"	Martite, in syenite	2340	1	Dresden, Saxony		" " "
4797	"	"	Hydrotalcite	2311	1	Vernon, New Jersey		" " "
4798	"	"	Mimetite (hedyphane)	2342	1	Langban, Sweden		" " "
4799	"	"	Cassiterite	2343	1	Cornwall, England		" " "
4800	"	"	Cuprite	2344	1	" "		" " "
4801	"	"	Œrstedite	2345	1	Chesterfield, Mass		" " "
4802	"	"	Pinite (killinite)	2346	1	" "		" " "
4803	"	"	Orthoclase (perthite)	2347	1	Perth, n'r Burgess, Can		" " "
4804	"	"	Bornite and cuprite	2348	1	Plumas Co., California		" " "
4805	"	"	Scapolite, massive, blue	2349	1	Templeton, Canada		" " "
4806	"	"	Titanite (lederite)	2350	1	Grattan, Renfrew Co., Canada		" " "
4807	"	"	Amphibole and albite	2351	1	Snarum, Norway		" " "
4808	"	"	Pyroxene (augite)	2352	1	Templeton, Canada		" " "
4809	"	"	Orthoclase, twin crystals	2353	1	Furhsberg, Silesia		" " "
4810	"	"	*Eozoon Canadense*, Dawson	2354	1	Templeton, Canada		" " "
4811	"	"	Scapolite and pyroxene (augite)	2355	1	" "		" " "
4812	"	"	Glauconite with apophyllite	2356	1	Ghauts Mts., India		" " "
4813	"	"	Octahedrite (anatase)	2357	1	Tavesch, Grisons		" " "

Specimens Registered in the museum in 1882.—Continued.

Serial Number.	OBTAINED.		NAME	[Prof. S.'s No.	No. of Specimens.	Locality.	Formation	Collector and Remarks.
	When.	Whence.						
4814	Oct. 3, '82	By exchange	Greenockite (yellow powder), in a compact rhodonite (fowlerite), tephroite, garnet, and willemite (troostite)?	2338	1	Franklin, N. J.	....	From Prof. C. U. Shepard.
4815	"	"	Willcoxite and centhophyllite	2359	1	Franklin, N. C.	....	" " "
4816	"	"	Perofskite	2360	1	Ackmatowsk mine, Russinsk, Urals	....	" " "
4817	"	"	Tridymite, in trachyte.................	2361	1	Siebengeberge, Prussia	....	" " "
4818	"	"	Spinel (rubies),—(in test-tube)	2362	Many	Ceylon	....	" " "
4819	"	"	Cancrinite...............	2363	1	Litchfield, Maine... ...	....	" " "
4820	"	"	Garnet................................	2364	1	Templeton, Canada....	....	" " "
4821	"	"	Talc (rensselaerite).	2365	1	" "	....	" " "
4822	"	"	Malachite on chalcocite, which contains silver........	2366	1	Turrinsk, Urals........	....	" " "
4823	"	"	Guano (pyroclasite)	2367	1	Moneta Island, West Indies..	....	" " "
4824	"	"	Pelhamine............................	2368	1	Pelham, Mass..........	....	" " "
4825	"	"	Apatite, in red calcite.................	2369	1	Grattan, Canada.......	....	" " "
4826	"	"	Titanite, amphibole, and augite.......	2371	1	Templeton, Canada ..	....	" " "
4827	1882	Presented.	Cement stone, from Buck's quarry........		1	Mankato, Minn.........	Shakopee limestone	Presented by Hon. D. Buck.
4828	"	"	Travertine ("petrified moss")..		1	Two miles S. of Osceola Mills, Wis............	Recent springs.	" Prof. C. W. Hall.
4829	"	"	Rock salt..................................		1	England....	....	" " "
4830	"		Granite, with Amazon stone as feldspar.		1	Mt. Desert, Maine	....	" Prof. J. A. Dodge
4831	"	exchange.....	*Acervularia davidsoni*, Ed. & H...........		1	Iowa City, Iowa	Hamilton, Dev......	From Prof. S. Calvin.
4832	"	"	*Favosites billingsii*, Rom...................		1	Bartlett's Mills, Ontario Canada...............	Hamilton, Dev......	" " "
4833	"	"	*Favosites placenta*, Rom. (two varieties)..		2	Bartlett's Mills, Ontario Canada...............	Hamilton, Dev......	" " "

4834	1882	By exchange	*Heliophyllum halli*, Ed. & H.	2	Bartlett's Mills, Ontario, Canada	Devonian	From Prof. S. Calvin.
4835	"	"	*Cystiphyllum americanum*, Ed. & H.	2	" "	Hamilton, Dev.	" " "
4836	"	"	*Pachyphyllum woodmani*, White, (rare)	1	Lime Cr'k, Rockford, Ia	Dev. shales	" " "
4837	"	"	*Cyathophyllum multiplicatum*, Owen	2	Manchester. Iowa	Niagara, U. Sil.	" " "
4838	"	"	*Terebratula linklaeni*	3	Fayette, Iowa	Devonian	" " "
4839	"	"	*Spirfera pennata*, Owen	2	Independence, Iowa	Hamilton Dev	" " "
4840	"	"	" *mucronata*, Con.	7	Widder, Ontario, Can.	" "	" " "
4841	"	"	" *hungerfordi*, Hall	5	Lime creek, Iowa	Devonian	" " "
4842	"	"	" *whitneyi*, Hall	2	" " "	"	" " "
4843	"	"	" *orestes*, H. & Whitf.	3	" " "	"	" " "
4844	"	"	" *aspera*, Hall	1	Pine creek, Muscatine Co., Iowa	"	" " "
4845	"	"	" *parryana*, Hall	2	" " "	"	" " "
4846	"	"	*Athyris vittata*, Hall	13	" " "	"	" " "
4847	"	"	" " "	3	Iowa City, Iowa	Hamilton, Dev.	" " "
4848	"	"	*Leiorhynchus altus*, Calvin	3	Solon, Iowa	Devonian	" " "
4849	"	"	*Pentamerus oblongus*, Sowerby	3	Iowa	Niagara, U. Sil.	" " "
4850	"	"	*Atrypa aspera*, var. *occidentalis*	2	Independence, Iowa	Devonian	" " "
4851	"	"	" *reticularis*, Lin.	6	" "	Hamilton, Dev.	" " "
4852	"	"	" " "	9	Pine creek, Muscatine Co., Iowa	Devonian	" " "
4853	"	"	" " "	9	Lime creek, Iowa	"	" " "
4854	"	"	" *hystrix*, Hall	5	" " "	"	" " "
4855	"	"	*Orthis impressa*, "	4	Hackberry Grove, Iowa	Hamilton, Dev.	" " "
4856	"	By exchange	*Strophodonta reversa*, Hall	3	Lime creek, Iowa	Devonian.	" " "
4857	"	"	" *hybrida*, H. & W.	3	" "	"	" " "
4858	"	"	" *canace*, H & W	2	" "	"	" " "
4859	"	"	" *exilis*, Calvin	3	" "	"	" " "
4860	"	"	" *arcuata*, Hall	2	" "	"	" " "
4861	"	"	*Productella dissimilis*, Hall	2	" "	"	" " "
4862	"	"	*Naticopsis gigantea*, H. & W. (casts)	3	" "	"	" " "
4863	"	"	*Batocrinus rotundus*, Shum	2	Burlington, Iowa	Burling t'n beds, Sub-Carboniferous	" " "
4864	"	"	*Trigonocarpus*	2	Youngstown, Ohio	Coal Measures	" " "
4865	"	By purchase	*Goniasteroidocrinus tuberosus*	1	Crawfordsville, Indiana		From Prof. D. A. Bassett.
4866	"	"	*Onychocrinus exculptus*	1	" "		" " "
4867	"	"	*Platycrinus hemisphericus*	1	" "		" " "

Specimens registered in the museum in 1882.—Continued.

Serial Number.	OBTAINED.		NAME.	No. of Specimens.	Locality.	Formation	Collector and Remarks.
	When.	Whence.					
4868	1882	By purchase	*Scaphiocrinus æqualis*	1	Crawfordsville, Indiana	....	From Prof. D. A. Bassett.
4869	"	"	*Poteriocrinus decadactylus*....	1	" "	....	" " "
4870	"	"	*Platyceras equilateralis*	3	" "	....	" " "
4871	"	Presented	Sandstone, dressed blocks.....	2	Dresbach, Minn........	St. Croix...	Presented by J. F. Testevin, of St. Paul.
4872	"	"	" " " (from weathered beds)	1	" "	" ...	Presented by J. F. Tostevin, of St. Paul.
4901	Aug. 1881	Presented.........	Magnetite..................	1	Eastern Tennessee.....	....	Presented by Gen. Wilder.
4902	"	"	Sandstone.......	2	Top of Lookout Mt., Tenn	Sub-Carboniferous	Presented by N. H. Winchell.
4903	"	"	Oolyte..	1	Near Sherwood, Tenn..	"	" " " "
4904	"	"	Limestone...	1	Central Kentucky......	St. Louis limestone, Sub-Carboniferous	" " " "
4905	"	"	" (variegated)	1	High Bridge, Ky........	Trenton...	" " " "
4906	"	"	" (fine-grained)	1	" "	"	" " " "
4907	"	"	Limestone......	6	Montreal, Canada......	"	" " " "
4908	"	"	Limestone cut by dyke of igneous rock..	1	Mt. Royal, Montreal, Can	"	" " " "
4909	"	"	Eruptive rock, coarse-grained	3	" " "	... .	" " " "
4910	"	"	" " fine-grained; dyke cutting the limestone.	1	" " "	....	" " " "
4911	"	"	Metamorphic rock	1	" " "	....	" " " "
4912	Aug. 1882	"	Apatite	2	Ottawa, Canada........	....	" " " "
4913	"	"	Hematite	1	Haycock Iron Location, 7 miles from Ottawa, Canada....	....	" " " "
4915	1877	Geol. & Nat. Hist. Survey..........	Lignite (fragments in a bottle	Many.	Newberg, Mitchell Co., Iowa....................	Devonian.	N. H. Winchell.
4916	"	Geol. & Nat. Hist. Survey	Peat, interglacial,—18 inches thick........	Much..	Sec. 12, Windom, Mower Co....................	Interglaial	" "

4917	1877	Geol. & Nat. Hist. Survey	Iron ore, concretionary	1	Austin		" "
4918	1882	Presented	Lignite	M'ny	Valley of the Redwood river	Cretace'us	Presented.
4919	"	"	Black clay, 85 feet below the surface	Svr'l.	Melotte, Dakota	"	Presented by C. H. Prior.
4920	"	"	Drillings from a well, 149 feet deep	"	New Richland, Waseca Co	"	" " C. E. Whelpley.
4921	"	"	Brass, melted and crystallized, from the heated journal of a car-wheel	1	Minnesota.		" " N. H. Winchell.
4922	"	"	Limestone fragments from the drift	12	Vicinity of Rockford, Wright Co	Drift	" " H. Ellington.
4924	"	"	Concretion of sandstone, spike-like	1	Sec. 21, T. 98, R. 4, Iowa		" " " "
4951	"	"	Stalactites and stalactitic crust	3	Olmsted Co	Recent springs	Presented by Miss Cora E. Goode.
4955	"	"	Native gold and silver, with argentite	1	Vein of the Bodie mine, Bodie, Cal		Presented by H. Augustus Whiting.
4956	"	"	Couuntry rock, with fronds of native silver	1	Bodie mine, Bodie, Cal.		" " "
4957	"	"	Arenaceous shale, cont'in'g scales of fishes	40	Raiload well, Aberdeen, Dakota	Cret.(?)	Presented by C. H. Prior.
4958	"	"	Concretion, calcareous	1	Dakota	"	" " M. A. Morey.
4959	"	"	Limestone	2	Decorah, Iowa	Trenton	" " W. J. McGee.
4960	"	"	Dolomite	3	State Quarry, Anamosa, Stone City, Iowa	Niagara	" " "
4961	"	"	"	4	Farley, Iowa	"	" " "
4962	"	"	"	2	Lemont, Illinois	"	" " "
4963	"	"	Limestone	2	Buffalo, Scott Co., Iowa	Hamilton	" " "
4964	"	"	Oolyte	2	Le Grand, Iowa	Kindern'k	" " "
4965	"	"	Hydraulic dolomite	4	Iowa Falls, Iowa	"	" " "
4966	"	"	Sandstone	1	Fairfield, Iowa	St. Louis	" " "
4967	"	"	Dolomite	2	Pella, Iowa	"	" " "
4968	"	"	Limestone	1	Sigourney, Iowa	Carbonif's.	" " "
4969	"	"	Sandstone	2	Buffalo, Scott Co., Iowa	Coal Measures	" " "
4970	"	"	Gypsum	1	Fort Dodge, Iowa	Jur. or Triassic	" " "
4979	"	Geol. & Nat. Hist. Survey	Sandstone	7	Lewiston, Winona Co	Jordan	N. H. Winchell.
4980	"	" "	"	22	Dresbach, "	St. Croix	"
4985	"	" "	Conglomerate	5	" "	"	"
4986	"	" "	Sandrock, with fucoidal markings	12	" "	"	"
4987	"	" "	Soil (loess-loam)	Much	St. Charles, "	Recent	"
4988	"	" "	Sub-soil	"	" "	"	"
4989	"	" "	"	"	Pickwick, "	"	"
4990	"	" "	Brick-clay	"	Dresbach, Winona Co.	Alluvial	"
4991	"	" "	Brick, red; (Sherwood & Johnson)	1	" " "		"
4992	"	" "	" pressed, sunburned; (Sher. & John.)	1	" " "		"
4993	"	" "	" red; (Biesanz)	1	Winona, " "		"
4994	"	" "	Limestone	1	LaCrosse, Wisconsin	St. L'wr'nc	"

Specimens registered in the museum in 1882.—Concluded.

Serial Number.	OBTAINED.		NAME.	No. of Specimens.	Locality.	Formation	Collector and Remarks.
	When.	Whence.					
4995	1882	Geol. and Nat. Hist. Survey.	Calcarous concretions	20	Bryan's, near Minnesota City	Lœss-loam	N. H. Winchell.
5003	"	" "	Concretions from the green shales	50	Sec. 16, Minneola, Goodhue county	Hudson River	"
5007	"	Presented	Slabs showing glacial striation and polishing.	4	Quarry opp. the University, Minneapolis.	Trenton	Presented by C. L. Herrick.
5018	"	"	Pebble, black, ½ inch long; in Trenton limestone	1	Minneapolis	"	" "
5068	"	Geol. and Nat. Hist. Survey.	Calcite, in drusy cavity	1	"	"	N. H. Winchell.
5120	"	" "	Calcite crystals	4	"	"	C. L. Herrick.
5145	1881	Presented	Brick-clay	3	Collingwood, Meeker county	Modified Drift	Presented by Mr. Pendergast.
5146	"	"	Peat	2	Near Coon creek, Anoka Co.	Recent	" Dwight Mitchell.
5147	"	"	*Orthis Kassubæ*, Winchell	1	Minneapolis	Trenton	" J. C. Kassube.
5148	"	"	" *perveta*, Con.	1	"	"	" "
5149	"	"	" *subæquata*, Con.	2	"	"	" "
5150	"	"	" *tricenaria*, Con.	1	"	"	" "

ARCHÆOLOGICAL ADDITIONS TO THE MUSEUM IN 1882.

74. Fragments of Indian pottery. From the northwest shore of Mille Lacs. Collected by Warren Upham.

75. Lock of Dirt-in-the-Face's hair, braided. Miles City, Montana; Nov. 1, 1881. Presented by Col. J. B. Clough.

76. Arrow-point of chert; narrow. From a mound at Dresbach, Winona county. Presented by George B. Dresbach, Jr.

77. Copper chisel, 1⅛ to 2 inches broad, 6 inches long. From the same mound at Dresbach. Presented by George B. Dresbach, Jr.

78. Copper chisel, 1 to 1⅛ inches wide, 7 inches long. From the same mound with the preceding. Presented by John H. Mosse.

79. Piece of pottery, also from the same mound at Dresbach. Presented by John H. Mosse.

80. Fragment of a human skull. From the same mound. Presented by John H. Mosse.

81. Piece of pottery, from the largest (nine feet in hight) in a group of sixteen mounds, N. E. ¼ of sec. 31, Greenwood, Hennepin Co. (at junction of creek, outlet from Lake Sarah, with the Crow river.) Presented by H. Ellington.

82. Fragment of a bone, from the same mound with the last. Presented by H. Ellington.

83. Angular fragments of chert (chipped?). Found between Mankat and South Bend, and presented by Rev. Louis J. Hauge.

84. Lance-head of gray chert, notched at base, unsymmetrical. Record lost.

85. Imperfect arrow-point of gray quartzyte. Record lost.

86. Arrow-points of flint and chert; three, all notched at base. Records lost.

87. Spear-point of quartzyte. From Martha's Vineyard. Presented by Mrs. Maj. C. J. Allen.

88. Arrow-point of flint, small, triangular. From Martha's Vineyard. Presented by Mrs. Allen.

89. Low, conical disk of limonite, polished, with a thin edge. From Sherwood, Tennessee. Presented by N. H. Winchell.

90. Rose-quartz arrow-point, with unnotched base. From Sherwood, Tennessee. Presented by N. H. Winchell.

91. Small, quartz arrow-point. From Sherwood, Tennessee. Presented by N. H. Winchell.

92. Arrow-points (six) of chert, with notched base. From Sherwood, Tennessee. Presented by N. H. Winchell.

93. Stone implements (five), with broad, notched base. From Sherwood, Tennessee. Presented by N. H. Winchell.

94. Implements (five) of chert, rudely chipped. From Sherwood, Tennessee. Presented by N. H. Winchell.

95. Chert clippings (twenty-three.) From Sherwood, Tennessee. Presented by N. H. Winchell.

96. Stone arrow-points (forty), notched at the base. From Waterloo, Alabama. Presented, Oct., 1882, by C. L. Herrick.

97. Stone arrow points (five), triangular, notched at base. From Waterloo, Ala. Presented, Oct., 1882, by C. L. Herrick.

98. Stone arrow-points (nineteen), unnotched. From Waterloo, Ala. Presented by C. L. Herrick.

99. Large arrow-point, of concretionary chert. From Waterloo, Ala. Presented by C. L. Herrick.

100. Unsymmetrical stone arrow-points (six). From Waterloo, Ala. Presented by C. L. Herrick.

101. Stone lance-heads (nineteen). From Waterloo, Ala. Presented by C. L. Herrick.

102. Fragmentary stone arrows and lance-points (seventy-seven). From Waterloo, Ala. Presented Oct., 1882, by C. L. Herrick.

103. Stone hatchets and fragments (fifteen). From Waterloo, Ala. Presented by C. L. Herrick.

104. Elongated implements of stone (twenty). From Waterloo, Ala. Presented by C. L. Herrick.

105. Implement of red chert. From Waterloo, Ala. Presented by C. L. Herrick.

106. Stock from which stone implements were made (twenty-eight pieces). From Waterloo, Ala. Presented, Oct., 1882, by C. L. Herrick.

107. Stone chippings (eighty-five). From Waterloo, Ala. Presented by C. L. Herrick.

108. Implement of dark, reddish-brown quartzyte. From Decatur, Alabama. Presented, Oct., 1882, by C. L. Herrick.

109. Implement (hide-dresser) of trappean rock. From Decatur, Ala. Presented by C. L. Herrick.

110. Fragments (eighty-one) of Indian pottery. From Eastport, Mississippi. Presented by C. L. Herrick.

111. Shells (thirty-two gasteropods and three lamellibranchs) from shell-bed (pre-historic kitchen-midden?) in bank of the Tennesse river, Waterloo, Alabama. Presented, Oct., 1882, by C. L. Herrick.

APPENDIX.

MINNESOTA LAWS RELATING TO MINES AND MINING.

ABSTRACTED BY C. L. HERRICK.

GENERAL LAWS.

GENERAL LAWS, 1858, p. 250. This is a general act to regulate corporations for manufacturing, mining, agricultural, mechanical and chemical purposes, defining the methods of association, the capital stock, the rights of stock-holders and their joint and individual liabilities for the debts and obligations of the corporation.

GENERAL LAWS, 1860, p. 173. *An act to authorize the formation of corporations for mining, smelting, or manufacturing iron, copper, silver or other ores or minerals.*

Be it enacted by the Legislature of the State of Minnesota.

SECTION 1. All corporations organized under the provisions of this act, shall be capable of suing and being sued in any court of this state, and may have a common seal, and alter the same at pleasure, may elect or appoint in such manner as they shall determine, all necessary officers and agents, and may fix their compensation and determine their duties and make from time to time, such by-laws not inconsistent with the constitution and laws of this state, as a majority of the stock-holders shall direct.

SEC 2. Any number of persons not less than three, who shall, by articles of agreement in writing, associate according to the provisions of this act, under any name assumed by them, for the purpose of engaging in and carrying on mining, smelting or manufacturing iron, copper, silver or other minerals, and who shall comply with the provisions of this act, shall with their successors and assigns constitute a body politic and corporate in fact and name, under the name assumed by them in their articles of association.

Provided. No company shall take a name previously assumed by any other company.

Sec. 3. Before any company formed under this act shall commence business, the president and directors shall cause their articles of association to be filed with the secretary of state of this state, and also a copy thereof with the register of deeds of the county in which its principal business is to be conducted; where said articles shall be recorded at length in books prepared for that purpose.

Sec. 4. The articles of every such association shall be signed by the persons associating in the first instance, and acknowledged before some persons authorized by law to take the acknowledgement of deeds, and shall state

First. The distinct purpose for which the association is formed.

Second. The amount of their capital stock and the number of shares.

Third. The amount of capital stock actually paid in.

Fourth. The place in the state where their office for the transaction of business is to be held, and the county or counties in which their business is to be carried on.

Sixth. The term of its existence, not to exceed thirty years.

Sec. 5. The amount of capital stock in every such corporation shall, in no case be less than ten thousand (10,000) dollars nor more than five hundred (500,000) dollars, and shall be divided into shares of fifty dollars each; but the capital stock and number of shares may be increased at any regular meeting of the stockholders.

Provided. The amount of capital when so increased shall not exceed the sum of five hundred thousand (500,000) dollars.

Sec. 6. The purposes for which such corporations shall be established, shall be distinctly and definitely specified in the articles of association; and it shall not be lawful for said company to appropriate its funds for any other purpose.

Sec. 7. Any two of the signers of such articles of association may call the first meeting of the corporators for the purpose of organizing the company, at such time and place as they may appoint, by giving personal notice to each corporator, or by publishing the same in some newspaper at least fifteen days before the time appointed for such meeting.

Sec. 8. The stock, property and business of such corporation shall be managed by not less than three nor more than seven directors, as the articles may determine, one of whom shall be a resident of the state; they shall hold their offices for one year, and until their successors shall be duly chosen. The time and place of the meeting of stockholders for the election of directors and other purposes, shall be fixed by the by-laws, and at all such meetings each share of stock shall be entitled to one vote.

Sec. 9. The directors of every such corporation shall choose one of their number president, and shall appoint such other officers and agents as the articles of association or by-laws may require, who shall hold their offices for one year, or until a majority of the stockholders choose others in their stead. The majority of directors for the time being, shall have power to fill any vacancy which may happen in their board by death, resignation, or otherwise, until the next regular meeting of the stockholders.

Sec. 10. The directors may call in the subscription to the capital stock of such corporation by installments in such portion and at such times and places as they shall think proper, by giving notice thereof as the by-laws shall prescribe, and in case any stockholder shall neglect or refuse payment of any such installment for the space of sixty days after the same shall have become due and payable, and after he shall have been notified thereof, the stock of said delinquent stockholder may be sold by the directors at public auction, at the office of the secretary of such corporation, giving at least thirty days notice in some newspaper in the county in which said office is located.

Provided. That if said stockholder is a resident of this state, the stock shall be sold at the business office of said corporation in the county in which its business is conducted, giving at least thirty-days notice thereof in some newspaper printed in the county and if no newspaper is published in said county, then it shall be published in some newspaper at the capital of the state, and the proceeds of such sale shall be first applied in payment of the installment called for, and the expense of the sale, and the residue shall be refunded to the person entitled to the same, and such sale shall entitle the purchaser to all the rights of a stockholder to the extent of the shares so bought.

SEC. 11. A majority of the directors of any such corporation for the time being, convened according to the by-laws, shall constitute a quorum for the transaction of business; and those holding a majority of the stock at any meeting of the stockholders shall be capable of transacting the business of the meeting, and at all such meetings stockholders may vote in person or by proxy duly filed.

SEC. 12. If it shall so happen than an election of directors shall not take place at the annual meeting, such corporation shall not in consequence thereof be dissolved; but an election may be held at any time thereafter by giving thirty days notice thereof in the manner provided in the by-laws of the company.

SEC. 13. Every such incorporation shall have power to acquire, hold, and transfer all such real and personnl estate as the directors shall adjudge necessary or convenient for the purpose of conducting, carrying on, or disposing of the business of such corporation.

Provided. That its real estate held at any one time shall not exceed three thousand acres.

SEC. 14. The stock of any such corporation shall be deemed personal property, and shall be transferable only on the books of such company in such form as the directors shall prescribe, and such corporation shall at all times have a lien upon the stock or property of its members invested therein for all debts due from them to such corporation, which may be enforced by advertisement and sale in the manner provided for selling delinquent stock.

Provided. That assessors and all other officers, whose duty it may be to assess property for purposes of taxation, may take into consideration the productiveness or unproductiveness of the mine, stock and improvements thereto belonging, and value the same accordingly.

SEC. 15. The directors shall cause a record to be kept of all stock subscribed and transferred, and of all business transactions, and their books and records shall at all times be open to the inspection of any and every stockholder; they shall also when required present to the stockholders reports in writing of the situation and amount of business of the company, and declare and make such dividends of the profits from the business of the company, not reducing the capital stock, while they have outstanding liabilities.

SEC. 16. The directors of any company organized under this act, shall have power to establish one or more offices without this state, and transact business thereat.

Provided, however. That an office shall always be maintained in this state where legal processes may be served on the person in charge thereof.

SEC. 17. Each stockholder in any company organized under this act, shall be liable for the debts of the company to the amount of stock held or owned by him therein.

SEC. 18. This act shall take effect from and after its passage.

Approved Feb. 24, 1860.

GENERAL LAWS, 1860. p. 258. *An act to amend an act entitled "An Act to regulate corporations for manufacturing, mining, agricultural, mechanical and chemical purposes," passed Aug. 12, 1858.* This amendment provides that any corporation created before the passage of the original act may by vote of its stockholders avail itself of its privileges.

GENERAL LAWS OF MINNESOTA, 1864, p. 111. *An Act to provide for a geological survey of the north shore of lake Superior, within the limits of this state, and other mineral and coal districts, and to appropriate money therefor.*

Be it enacted by the Legislature of the State of Minnesota.

SECTION 1. That there be and is hereby appropriated, out of any moneys in the treasury not otherwise appropriated, the sum of two thousand dollars, to be expended, or so much thereof as may be necessary, under the direction of the governor, in causing to be made a geological survey of the mineral lands on the north shore of lake Superior, within the limits of this state, and also all other mineral or coal districts of the state, and the governor is hereby authorized to appoint a suitable person or persons to make such survey, whose report of the same shall be made to the governor, and by him transmitted to the Legislature.

Approved March 4, 1864.

GENERAL LAWS OF 1865, p. 84. *An Act to continue the geological survey of the mineral lands of the north shore of lake Superior.*

Be it enacted by the Legislature of the State of Minnesota.

SECTION 1. That the governor be and is hereby authorized and empowered to appoint some suitable person to continue the geological survey of the mineral lands of the north shore of lake Superior, lying in the state of Minnesota, and also other mineral bearing districts within the limits of the state.

SEC. 2. Such person so appointed shall before entering upon his duties under the provisions of this act, take and subscribe an oath to diligently and faithfully discharge such duties to the best of his ability. And he shall proceed at as early a day as practicable to continue such survey under the direction of the governor. He shall make analysis of metal-bearing rocks that may be obtained during such survey, to the end that the commercial value thereof may be ascertained, and he shall report the same to the governor on or before the first day of January A. D. eighteen hundred and sixty-nine. He shall also make and report sectional maps showing the location of minerals examined and analyzed and as far as in his power, report upon the extent of the coal fields on the waters of the Big Cottonwood river, and the extent of such other mineral deposits as he may find, and such report shall be transmitted by the governor to the Legislature.

SEC. 3. The governor shall have power to draw from the state treasury out of moneys not otherwise appropriated, a sufficient amount to pay the actual and necessary expenses incurred by such person so appointed under the provisions of this act, not to exceed the sum of one thousand dollars.

SEC. 4. This act shall take effect and be in force from and after its passage.

Approved March 7, 1865.

GENERAL LAWS 1865, p. 85. *An Act to enable N. C. D. Taylor to continue the geological exploration of the country in the valley of the St. Croix, within this state.*

Be it enacted by the Legislature of the State of Minnesota.

SECTION 1. That the sum of one thousand dollars be and the same is hereby appropriated and ordered to be set apart to N. C. D. Taylor out of any moneys in the treasury not otherwise appropriated, to enable him to continue the geological exploration of the country in the valley of the St. Croix, within this state, and that he report to the next Legislature the result of his labors.

SEC. 2. This act shall take effect and be in force from and after its passage.

Approved March 2, 1865.

GENERAL LAWS, 1866, p. 80. *An act to regulate mining upon the public lands of the United States, within the State of Minnesota.*

Be it enacted by the Legislature of the State of Minnesota.

SECTION 1. The miners and inhabitants of any section of this state in which there may be mines of gold, silver or other metals, upon the public lands of the United States for which patents have not been issued, may meet and form a mining district, not to exceed in extent five miles square, fix the boundaries, adopt a name, and pass such rules and regulations for such districts as may be deemed by them necessary for the location, holding, recording and working of mines or mining claims upon such public lands of the United States within such district. They may also elect a recorder for said district, and provide his qualifications, duties, fees and liabilities,

Provided. That no such mining claim shall exceed in extent two hundred feet square, and

Provided, further. That no such mining claim shall be made except by actual occupancy.

SEC. 2. On the trial of any action in any court of this state involving claim to or the possession of any such mine or mining claim, or involving any right growing out of any such mine or mining claim, the rules and regulations so adopted in said district, or authenticated copies thereof, may be given in evidence, and so far as applicable shall govern the case.

SEC. 3. The term "mines" and "mining claims" as used in the preceding sections, shall be construed to embrace all water rights, ditches, flumes, timber claimed, or other interest appurtenant, necessary or auxiliary to a mine or mining claim, or the working thereof.

SEC. 4. The majority of the miners of such mining district, attending at a meeting, upon reasonable notice, may at any time change, alter, amend or repeal any of such rules and regulations previously adopted.

SEC. 5. This act shall take effect and be in force from and after its passage.

Approved March 2, 1866.

GENERAL LAWS, 1866, p. 98. *An Act to continue the geological survey of the State of Minnesota, and to appropriate money therefor.*

Be it enacted by the legislature of the State of Minnesota.

SECTON 1. Henry H. Eames is hereby appointed state geologist for the term of one year, commencing January 1st., 1866. He shall be commissioned by the governor, and it shall be his duty to continue the geological survey of the state, and prepare a report of such survey, subject to the provisions of section 2, chapter 39, of the general laws of Minnesota for 1865.

SEC. 2. The following sums of money are hereby appropriated out of any money in the state treasury not otherwise appropriated, for the prosecution of the geological survey for the year 1866.

For salary of state geologist, two thousand dollars, to be drawn monthly on the last day of the month.

For expenses of survey in mining districts and experiments on ores, and all incidental expenses of work, shall not exceed three thousand dollars, to be drawn upon the satisfactory vouchers of the state geologist, and accounts of expenditure to be furnished by him to the state auditor.

SEC. 3. The state geologist shall have his office in the capitol building, and shall there arrange and keep a collection of specimens of all minerals and such other interesting materials, which he may find in his explorations of the state. Said office shall be open to the public.

SEC. 4. The state geologist shall devote his time, labor and exertions exclusively for the benefit of the state at large, and shall afford no advantage whatever to any private enterprise or speculation.

SEC. 5. This act shall take effect and be in force from and after its passage.

GENERAL LAWS OF MINNESOTA, 1867, p. 40. *To regulate mining upon the public lands of the United States within the State of Minnesota.*

Be it enacted by the Legislature of the State of Minnesota.

SECTION 1. That all mineral districts to be hereafter formed in this state shall conform to the township lines of six miles square.

SEC. 2. That all mineral claims shall be made in person by the party claiming, and any claim not thus made, is invalid.

SEC. 3. That when a mineral vein or lode or lead, containing gold, silver, cinnabar, or copper is discovered, the party making the discovery shall be entitled to two hundred feet on said vein or lode or lead as a discovery claim, with one hundred feet of land on either side of said vein, lode or lead, for its convenient working; and he shall also be entitled to an additional claim of two hundred feet on said vein, lode or lead, with one hundred feet of land on either side of said vein or lode or lead, for its convenient working, according to the act of congress, passed July 26, 1866.

SEC. 4. That to receive mineral claims the person making them shall measure off correctly, the number of feet allowed by law and shall post up a notice of said claim, of a substantial nature upon a stake or tree, at the end of every two hundred feet, upon which shall be written the name of the vein, with date of taking, name of claimant, number of claim and its general direction.

SEC. 5. That the claimant shall, within the three months from the time of posting up a notice of his claim, in compliance with the law, sink a shaft on said claim three feet deep by five feet square, and shall take from the bottom of the shaft so sunk, specimens of the rock, properly labelled, with the name of the vein, name of claim and name of claimant, thereon, number of claim, east or west, with a correct description of said claim, and file with the register of deeds of the county in which the mineral district is situated, and the register of deeds, after being satisfied that the said claimant has complied with the requirements of the law, and that he has not exceeded the two hundred feet, shall issue to said claimant and record the same, a certificate with description of claim, that said claim has been properly secured under the provisions of the law.

SEC. 6. That in case the claimant fails to sink a shaft three feet deep by five feet square, within the three months specified, then he shall forfeit all right to the claim, and any other party can come in and take possession.

SEC. 7. That whenever any citizen of the United States or those who have declared their intentions to become citizens, shall have complied with the provisions heretofore set forth, then they shall have rightful possessions of all claims made under and by virtue of this act for the space of one year from the date of the claim made, then all right and title to said claim shall be forfeited and another claimant may come in and take possession and secure a title under the law.

SEC. 8. That any person found tearing or mutilating any notice posted on any mineral claim in this state, shall be subject to arrest and imprisonment and on conviction, shall be fined not less than $50 nor more than $500.

SEC. 9. That the term "mineral claim," as used in the preceding sections, shall embrace all water rights, ditches, flumes, timber claimed; or other interest appurtenant, necessary or auxiliary to a mine or mining claim or the working thereon.

GENERAL LAWS, 1873, p. 255. *An Act to aid the geological and natural history survey of the state and to amend chapter thirty-three of the general laws approved March first eighteen hundred and seventy-two, authorizing such survey.*

Be it enacted by the Legislature of the State of Minnesota.

SECTION 1. The state lands known as "state salt lands," donated by the general government to aid in the development of the brines of the State of Minnesota, shall be transferred to the custody and control of the board of regents of the University of Minnesota. By said board of regents these lands may be sold in such manner, or in such amounts as they may see fit, the proceeds thereof being held in trust by them, and only disbursed in accordance with the law ordering a geological and natural history survey of the state.

SEC. 2. It shall be the duty of said board of regents, as soon as practicable, to cause a full and scientific investigation and report of the salt springs of the state, with a view to the early development of such brine deposits as may exist within the state.

SEC. 3. The board of regents of the University of Minnesota, shall cause the immediate survey and investigation of the peat deposits of the state of Minnesota, accompanied by such tests and chemical examinations as may be necessary to show their economical value, and their usefulness for the purpose of common fuel, a full report thereon to be presented to the legislature as soon as practicable.

SEC. 4. A sum of two thousand dollars is hereby appropriated annually (in lieu of one thousand dollars) for the purposes of the geological and natural history survey, until such time as the proceeds of the sales of the salt lands shall equal that amount, when such annual appropriation shall cease.

SEC. 5. The sum of five hundred dollars is hereby appropriated for the purchase of apparatus and chemicals for the use of the geological and natural history survey, the same to be expended by order of the board of regents of the University of Minnesota.

SEC. 6. It shall be the duty of the board of regents of the University of Minnesota, to cause duplicate geological specimens to be collected and to furnish to each of the three normal schools, suites of such specimens, after the University collection has become complete.

SEC. 7. When the geological and natural history survey of the state shall have been completed, the final report on the same by the said board of regents shall give a full statement of the sales of salt lands hereby given into the custody and control of the board of regents of the University of Minnesota, together with the amount of money, received therefrom, and of the balances, if any left in the hands of the said board of regents.

SEC. 8. This act shall take effect and be in force from and after its passage.

Approved March 10, 1873.

GENERAL LAWS, 1876, p. 44-48. *An act to authorize the formation of corporations for mining and smelting ores, and for manufacturing iron, copper and other metals.*

Be it enacted by the Legislature of the State of Minnesota.

SECTION 1. Any number of persons not less than three, desiring to form a corporation for the purpose of mining or smelting ores or minerals, or for both purposes, or for the purpose of manufacturing iron, steel, copper, or other metals, may do so upon complying with the provisions of this act; and any corporation so formed shall be entitled to the rights and privileges and be subject to the duties and obligations herein prescribed and shall have perpetual succession.

SEC. 2. Such persons shall sign and severally acknowledge articles of incorporation, which shall declare that they do thereby associate together and agree upon said articles, for the purpose of forming a corporation under the provisions of this act; and which said articles shall also contain.

First. The name of the corporation, which shall not be the same as that previously assumed by any other corporation in this state.

Second. The general nature of the business to be carried on, and the place of the principal office or headquarters of the company.

Third. The names and places of residence of the persons so associating to form such corporation.

Fourth. The amount of the capital stock of said corporation.

SEC. 3. Such articles shall be executed in duplicate, one of which [shall be deposited for record in the office of the register of deeds of the county where said company shall establish its principal office, and the other with the secretary of state; and upon being so deposited, said corporation shall be deemed to exist under this act for the purposes specified in said articles, as a manufacturing and mechanical corporation, under the constitution and laws of this state, and may sue and be sued in the corporate name, and in such corporate name may contract and be contracted with, and transact and carry on the business mentioned in said articles, and may purchase, acquire, hold, use, sell transfer, convey, rent and lease all such real and personal property and effects as may be necessary or convenient for the purposes of said corporation. A certified copy of said articles from the said register of deeds, or from the secretary of state, shall be evidence in all courts of such corporation.

SEC. 4. The amount of capital stock of any such corporation shall in no case be less than ten thousand dollars, nor more than two million five hundred thousand dollars, and shall be divided into shares of twenty-five dollars each, and each share shall be entitled to one vote at any meeting of the stockholders, and may be represented by the holder thereof in person, or by his proxy, under written appointment. The capital stock may be increased by a majority vote of the stockholders at any regular meeting thereof, but not so as to exceed said maximum amount.

SEC. 5. Such corporation may prescribe and adopt by-laws for the management of its business and affairs, by a board of directors, trustees, committee or other officers or agents, and provide for their election or appointment, and prescribe their duties, and may require bond from any officer for the faithful discharge of duties, and may by such by-laws prescribe in respect to all matters appertaining to the business and affairs of said corporation, not inconsistent with the provisions of this act, nor the constitution or laws of this state. Such by-laws may be made, altered or amended by the directors, trustees or committee clothed with the general management of the affairs of such corporation, but the stockholders, at any regular meeting, may repeal or alter any by-laws, or adopt new ones, and such action shall remain binding until repealed or changed by the stockholders themselves at some regular meeting. Such corporation shall keep a record of all proceedings had at meetings of stockholders, and also of all proceedings had or taken by the board of directors, trustees, or committee having charge of its affairs, and such record shall be subject to the inspection of all stockholders at all reasonable times. A copy of all by-laws, duly certified, and all amendments and alterations of the same, shall be filed for record with the register of deeds where said articles of incorporation are recorded, and also with the secretary of state, and shall not become operative or valid until so filed. Until otherwise provided, the persons executing such articles of incorporation shall constitute a board of directors, with full power and authority to make by-laws and manage the affairs and business of such corporation.

SEC. 6. The stock of any such corporation shall be deemed personal property and may be issued, sold and transferred as may be prescribed by resolution or by by-laws of said corporation or its managing board, but no stock so issued or sold, purporting to be full paid, shall be subject to any further assessment in the hands of the lawful holder thereof, without his consent. Upon the issuance of stocks the lawful holders thereof shall constitute the members of such corporation, and a majority in amount thereof may call a meeting of the stockholders at any time, irrespective of any by-laws, at the principal office of the company, or at the capital of the state, upon giving thirty days notice by publication in a newspaper published at the place of such office, if there be such paper, and if not, then a paper published at the capital.

SEC. 7. The directors or managing officers of any such corporation may meet and transact business without this state, as may also the stockholders, by by-laws therefor; and offices may be established without this state. *Provided*, that an office shall always be maintained in this state, where legal processes may be served on such corporation, and such service upon an officer or director, if personally made, shall be deemed personal service upon the corporation.

SEC. 8. Any corporation organized under this act for the purpose of mining ore which has to be smelted or otherwise treated to extract the metal, may take, acquire, and hold stock in another corporation organized for the purpose of smelting or otherwise extracting the ore, if a majority of the stock holders shall so elect.

SEC. 9. Such corporation may mortgage its property, or any part thereof, by a vote of a majority of its stock, but not otherwise; and no real estate of any such corporation, or any interest therein, shall be sold, leased or conveyed, without the consent of a majority, in amount, of the stockholders.

SEC. 10. Any officer of any corporation organized under this act, or any other person or persons who shall fraudulently issue, or cause to be issued, any stock, scrip or evidence of debt of such corporation, or who shall sell, or offer for sale, hypothecate or otherwise dispose of any such stock, scrip or other evidence of debt knowing the same to be so fraudulently issued shall be deemed guilty of felony, and on conviction thereof, shall be imprisoned in the state prison not more than ten nor less than one year.

SEC. 11. This act may be altered or amended at the pleasure of the legislature, but not so as to divest or impair any right of property acquired under the same.

SEC. 12. This act shall take effect and be in force from and after its passage.

Approved February 24, 1876.

GENERAL LAWS, 1881. *An Act to encourage mining in this state by providing a uniform rule for the taxing of mining property and products.*

Be it enacted by the Legislature of the State of Minnesota.

SECTION 1. That all corporations now organized or that may be hereafter organized under the laws of this state for the purpose of carrying on the business of mining, smelting or refining copper or iron ores, or for the purposes of mining coal within the state, may pay into the state treasury annually, on or before the first day of January in each year, in lieu of all taxes or assessments upon the capital stock, personal property, income and real estate of such corporation, in or upon which real estate such business of mining may be carried on, or which real estate is connected therewith and set apart for such business, the following amounts, that is to say: on and for each ton of copper fifty (50) cents; on and for each ton of iron ore mined and shipped or disposed of, one cent for each ton; and for each ton of coal mined the sum of one cent per ton; each ton to be estimated as containing two thousand two hundred and forty (2,240) pounds; one-half of such payments to be credited to the general fund of the state, and the other half credited to the county or counties in which such mines are located.

SEC. 2. That it shall be the duty of each and every corporation accepting the provisions of this act to make return in writing, and report to the state auditor, on or before the fifteenth (15) day of December in each year, a true and full statement of each and every ton of copper or iron ore or coal mined and sold or disposed of during the year preceding the date of such return; which statement shall be verified by the oath of the president and secretary of such corporation. That any such officer who shall knowingly make or sign any false and untrue statement in such report or return, shall be deemed guilty of perjury and on conviction thereof shall be punished as provided in chapter twenty-seven (27) of of the general statutes of 1878.

SEC 3. That any corporation now organized under the laws of this state, or that may hereafter be organized therein for the purpose of mining, smelting or refining copper or iron ores, or for mining coal, may, by resolution duly adopted by its board of directors, accept all the provisions of this act, and that upon the filing of a certified copy of such resolution of acceptance in the office of the secretary of state for this state, such corporation shall be bound by the provisions of this act, and thereafter be entitled to all the benefits thereof.

SEC. 4. This act shall take effect and be in force from and after its passage.

Approved November 22, 1881.

SPECIAL LAWS.

(1849–75, INCLUSIVE.)

Mining Companies.

Great Western Mining Company of Pennsylvania, 1870, p. 441.
Boston and Minnesota, 1855, p. 111; 1866, p. 280.
Minnesota, 1856, p. 248; 1868, p. 409; 1869, p. 357.
North Shore, 1857, p. 212.
Pittsburg and Minnesota, 1855, p. 156; 1856, p. 107; 1864, p. 353.
Lake Superior and Puget Sound, 1871, p. 368.

Belle Plain Salt Company.

1870, pp. 424-421; 1871, p. 365; 1872, p. 428.

Minnesota Salt Company.

1866, p. 176; 1870, p. 421.

SPECIAL LAWS, 1855, p. 156. *An act to incorporate the Pittsburg and Minnesota Mining Company.*

SECTION 1. The corporators and their powers and liabilities under this charter.

SEC. 2. Limitation of the capital stock which is declared personal property.

SEC. 3. Rights and privileges to be enjoyed by the company and its power over lands.

SEC. 4. Stock to be deemed personal property, and transferable only on the books of the company.

SEC. 5. How and by whom the property of the corporation shall be controlled.

SEC. 6. Of the time and manner of electing directors.

SEC. 7. When this act shall take effect.

SEC. 8. The county of Carver declared organized, and the election of officers authorized until whose election the said county is attached to Hennepin county for judicial purposes.

SEC. 9. This act declared a public act.

SEC. 10. Power to modify and to amend reserved.

Approved March 3, 1855.

SPECIAL LAWS, 1855, p. 111. *An Act to incorporate the Boston and Minnesota Mining company.*

SECTION 1. Corporate name, the Boston & Minnesota Mining company—its seal, the manner of electing its officers and the establishment of by-laws.

SEC. 2. Capital stock and shares of the company.

SEC. 3. The rights and privileges to be enjoyed by the company.

SEC. 4. The stock of the company declared personal property.

SEC. 5. The affairs of the corporation to be managed and conducted by a board of not less than three nor more than seven directors, who shall decide the manner and proportions in which stock shall be paid in.

SEC 6. Of the place and manner of electing directors.

SEC. 7. When this act shall take effect.

SEC. 8. This act declared a public act.

SEC. 9. The right to modify and amend reserved.

Approved March 3, 1855.

SPECIAL LAWS OF MINNESOTA, 1856, p. 176. *An Act to incorporate the Minnesota Salt Company.*

SECTION 1. Names of corporators and name and style of company.

SEC. 2. Rights and privileges of corporators.

SEC. 3. Stock not to exceed $500,000.

SEC. 4. Number and power of board of directors.

SEC. 5. In force on and after passage.

SEC. 6. Subject to legislative alteration.

Approved February 20, 1856.

SPECIAL LAWS, 1856. *An Act to revive, amend and continue an act entitled, "An Act to incorporate the Boston and Minnesota Mining Company," approved March 30, 1855, and to revive the corporation thereby created.*

SECTION 1. Revives act of Territorial Assembly relative to Boston Mining Company.

SEC. 2. Amends section one of said act, by naming certain parties to constitute the corporation.

SEC. 3. When act to take effect.

Approved March 3d, 1855.

SPECIAL LAWS, 1856, p. 248. *An Act to Incorporate the Minnesota Mining Company.*

SECTION 1. Names of corporators, created body corporate.

SEC. 2. Rights and privileges of corporation.

SEC. 3. Amount of capital stock.

SEC. 4. Affairs, by whom managed.

SEC. 5. By-laws to provide for election.
SEC. 6. Sum to be paid into the territorial treasury.
SEC. 7. To continue in force twenty years.

Approved Feb. 25, 1856.

SPECIAL LAWS, 1868, p. 409. *An act to amend chapter 149, of the Session Laws of 1856, entitled "An Act to Incorporate the Minnesota Mining Company.*

SECTION 1. Board of Incorporators, name and style of said company to be Minnesota Mining Company.

SEC. 2. To enjoy all rights and privileges incident to a mining corporation.

SEC. 3. Capital stock not to exceed one million dollars in one hundred dollar shares.

SEC. 4. Property to be managed by a board of directors elected annually.

SEC. 5. Date and place of elections, second Monday in March, in Minneapolis.

SEC. 7. President, etc., to be chosen by the board of directors and all certificates of stock or shares to be signed by president and countersigned by secretary under seal of the company.

SEC. 8. Act to be in force fifty years, but may be amended by the legislature after ten years.

SEC. II. Books for subscription to be opened in Minneapolis on the second Monday of March, 1868.

SEC. III. Act to be in force from and after its passage.

Approved March 5, 1868.

SPECIAL LAWS, 1868, p. 357. *An Act to amend Section one, of chapter one hundred and seventeen, of the Special Laws of the year 1868, relating to the Minnesota Mining Company.*

SEC. 1. Name changed to "Burnt Rock Mining Company" and vested with the usual obligations and privileges.

Approved March 3, 1869.

SPECIAL LAWS, 1870, p. 421. *An Act to aid the Belle Plaine Salt Company in the development of Salt Springs at Belle Plaine.*

SEC. 1. Grant of six sections of land to.

SEC. 2. Expenditure of the amount of $1600 entitles the company to one section of land till six such amounts have been expended.

SEC. 3. Such lands not to be sold by the company for less than $2.50 per acre; such rates to be reported to the governor. The company to be liable to the state for all money so procured not invested in carrying on business.

SEC. 4. A duty of one cent per bushel of manufactured salt, 'till an aggregate sum shall have been so paid equal to the value of such lands received at $2.50 per acre.

SEC. 5. The state reserves the right to impose any duty upon the product of salt springs, which may be discovered upon such lands granted.

SEC. 6. Any authorized officer may administer the necessary affidavits or oaths.

SEC. 7. To be in effect from and after its passage.

Approved Feb. 28, 1870.

SPECIAL LAWS, 1870, p. 424. *An act to amend the above act.*

SEC 1. Amends Sec. 5 of Chap. 114 special laws of 1870. All liabilities and obligations to the state which the said company shall be under or may assume, shall attach to assigns or representatives in case of sale or transfer.

Approved March 4, 1870.

SPECIAL LAWS, 1870, p. 444. *An Act authorizing the Great Western Mining Company of the State of Pennsylvania, to transact business in this state.*

SECTION 1. Said company authorized to purchase and hold real estate necessary to carry on the business of mining in this state.

SEC. 2. To appoint a resident agent in this state at Thompson City, upon whom service of process may be made.

SEC. 3. To be in force from and after its passage.

Approved March 1, 1870.

SPECIAL LAWS, 1871, p. 368. *An Act to further aid the Belle Plaine Salt Company in the development of salt springs at Belle Plaine.*

SECTION 1. Six additional sections of "salt lands" upon the same conditions as above, *provided* that the favorable opinion of some competent geologist, to be appointed by the governor, shall be secured.

SEC. 2. To be in force from and after its passage.

Approved March 6, 1871.

SPECIAL LAWS, 1871, p. 365. *An Act authorizing the Lake Superior and Puget Sound Company of the State of Maine to transact business in this State.*

Such powers are granted as are necessary for the purpose of carrying on its business.

An agent to be appointed at Crow Wing.

SPECIAL LAWS, 1882, p. 428. *An Act granting to the Belle Plaine salt company land in aid of the work of said company.*

Be it enacted by the Legislature of the State of Minnesota.

SECTION 1. That six sections of the "salt lands" of the state are hereby granted to the Belle Plaine salt company, for the purpose of aiding the same in the continuance of its work, upon the terms and conditions hereinafter named.

SEC. 2. Whenever the said company shall have bored to the depth of two hundred feet below the bottom of the present bore or well, the said company shall be entitled to a conveyance of two sections of said land, and whenever said company shall have bored to the further depth of two hundred feet, or four hundred feet from the bottom of its present bore or well, the said company shall be entitled to a conveyance of two additional sections of said land, and whenever the said company shall have bored to the depth of five hundred feet from the bottom of the present bore, the said company shall be entitled to a conveyance of of the other two sections of said land, Upon proof satisfactory to the governor that said company has fulfilled the terms and conditions entitling the same to any installment of said lands, the governor shall certify that fact to the state auditor, and upon filing such certificate together with a certificate signed by the president and secretary of said company, that the lands described therein have been selected by the said company under the grant made by this act, in the office of the state auditor, he shall receive and record the same, and thereupon the title to the lands so selected shall vest in the said company, which shall thereby become and be the owner thereof in fee.

Provided, however. That in making the said selections of said lands the said company shall not be allowed to select the whole or any part of any section of land on which any of the salt springs selected by the state is located, or more than three sections selected and located by the state as applicable or appurtenant to any one spring.

SEC. 3. Should the said company get through the rock at less than five hundred feet below the bottom of the present well, and there find salt deposits of sufficient strength to be profitably worked, and should cease boring therefor, and that fact be proven to the satisfaction of the governor, the said company shall receive a pro rata proportion of the said lands—upon such proof the governor shall certify the fact to the state auditor, which certificate, with a certificate of the said company, filed and recorded in the office of the state auditor as aforesaid, shall vest the title of the lands so selected in said company as herein before provided.

SEC. 4. This act shall take effect and be in force from and after its passage.

Approved February 29, 1872.

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PLATE 1.

Fig. 1. Map showing rock-outcrops in central Minnesota.

Fig. 2. Dikes of trap in syenite, sec. 28, T. 134, R. 32 (see page 88).

Fig. 3. Beaches of lake Agassiz.

By Warren Upham.

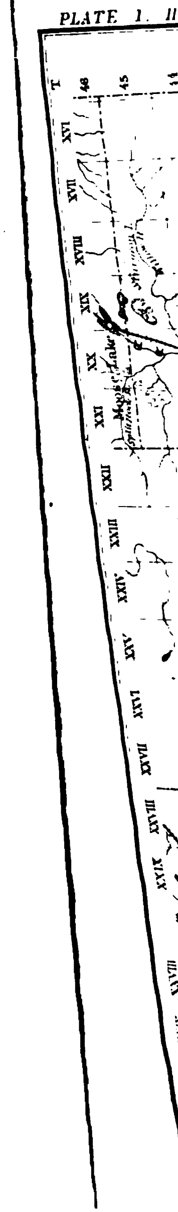
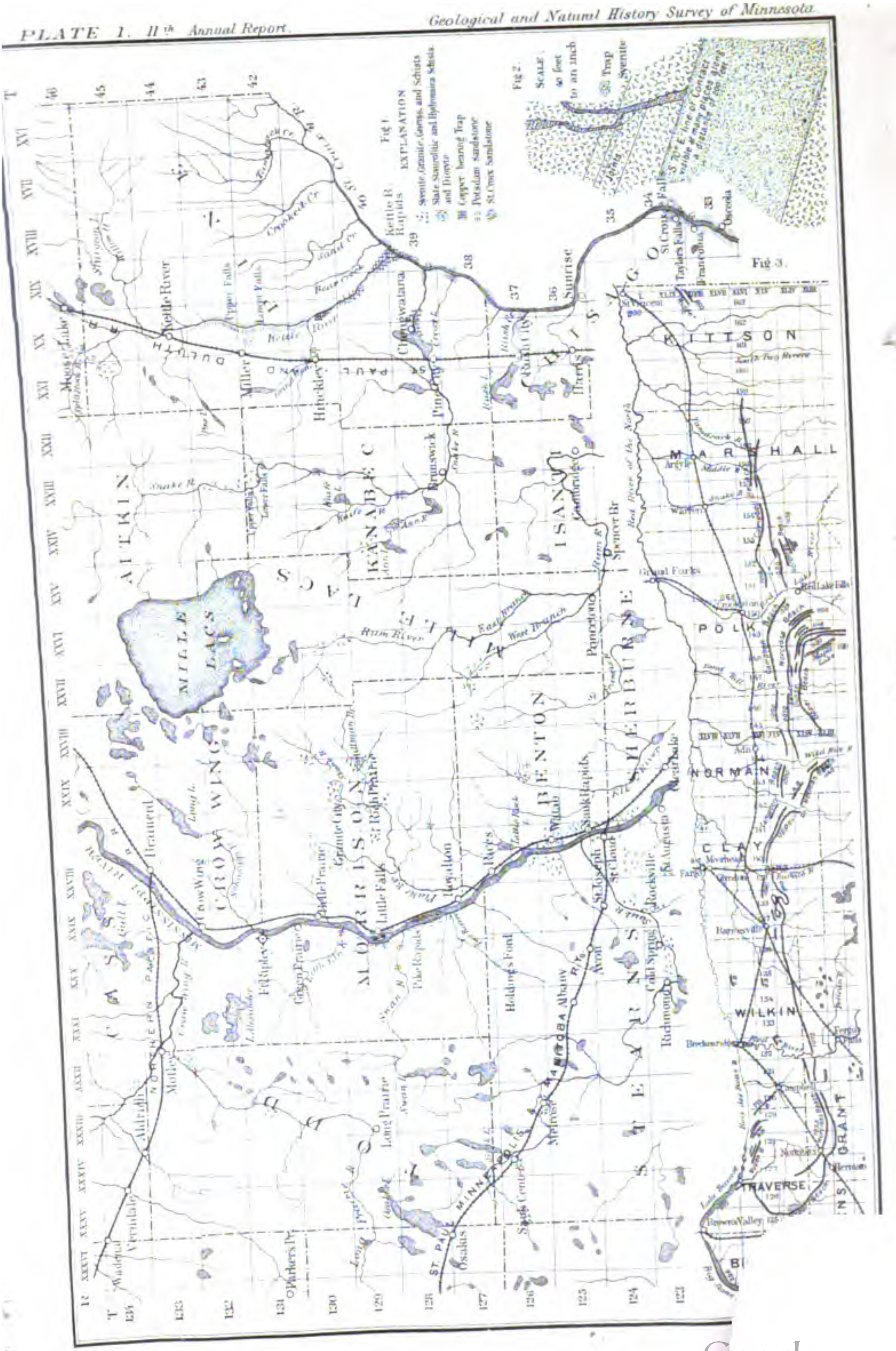


PLATE 1. 11th Annual Report. Geological and Natural History Survey of Minnesota.



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